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PADI LANDSCAPES OF MALAYA

By

E. H. G. DOBBY, PH. D.

AND OTHERS

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A GLOSSARY OF MALAY TERMS USED IN THE TEXT

The scientific terms for Malay tree-names are incorporated in the text.

- adat pērpateh*—(Nēgri Sēmbilan) the matriarchal law of Minangkabau.
- alor*—(Kēlantān) elongated depression between sandy ridges.
- anjong*—(Nēgri Sēmbilan) hall for the entertainment of guests.
- atap*—roofing thatch.
- atas kuda*—(Kēlantān) piece-rates.
- balai padi*—padi-store.
- barob*—low-lying land; (Kēlantān) used for wet padi-land.
- batas*—boundary-dyke to a padi-field.
- batu karang*—coral rock; (Kēlantān) a chocolate-brown, compact pan (see p. 7).
- bēhor*—(Kēdah and Pērlis), grazing land.
- bēlat batang*—brushwood dam.
- bēndang*—(Kēdah) irrigated padi-fields.
- bērdērau*—A system of mutual help by which neighbours assist one another not for cash or kind but in return for similar labour on one another's fields.
- bēris*—(Kēlantān, Trēngganu) (i) a broad bank of sand running more or less parallel to the north-east coast of Malaya; (ii) the sandy soil, underlain by iron-pan, which has developed on this ridge.
- bērkas*—bundle.
- bubor kachang*—a Malay bean porridge.
- changkul*—hoe for digging and breaking up earth.
- charian bujang*—(Nēgri Sēmbilan) land acquired by a man while a bachelor or widower.
- charian laki bini*—(Nēgri Sēmbilan) land purchased by husband and wife out of their joint savings.
- daerah*—(Kēlantān) subdivision of a district.
- dusun*—rural settlement; often used roughly in the sense of orchard.
- gēgala*—(Kēlantān) plough.
- gērak*—(Kēlantān) harrow.
- gong*—ridge, rising ground; (Kēlantān) sandy ridges running mainly parallel to the coast.
- imam*—presiding elder who leads the prayers at the Friday service.
- jala*—casting-net.
- jamban*—latrine.
- jēlapang*—rice-barn raised on posts.
- jinjang*—(Nēgri Sēmbilan) a banked subdivision of a padi-field.
- kampung*—cluster of buildings making up a large homestead or a small hamlet, and including the surrounding mixed gardens.
- kayu pēnyuchok*—planting stick.
- kērēbong*—(Kēdah and Pērlis) a cylindrical, plaited-bamboo bin used for sorting and storing padi.
- kētaman*—(Kēlantān) a small reaping knife which elsewhere in Malaya is called *tuai*, *q.v.*
- kētua*—elder, headman.
- kisar*—a form of domestic rice-mill made principally of bamboo and with grinding faces of hardened clay.
- korok*—to dig out.
- kui*—(Nēgri Sēmbilan) padi-store.
- lembah*—low-lying land.
- lēsong indēk*—a wooden, foot-operated, pestle-and-mortar device for loosening padi husks preparatory to milling.
- lukah*—basket-trap for fish.

- madrasah*—religious school in connection with a mosque.
- mēlulok*—(Nēgri Sēmbilan) the process by which, after being changkulled, fields are left fallow for about three weeks (to ensure the decomposition of the grasses) and then weeded.
- mēnyisip*—(Nēgri Sēmbilan) replacement of padi seedlings which have failed to take root.
- mukim*—territorial subdivision for purposes of land revenue.
- padang*—treeless waste land; (loosely) treeless plain; (Kēlantan) unusually wide and level stretches of sandy terrain.
- padi*—(rice (i) as a plant; (ii) in the ear; (iii) as unhusked grain.
- parit*—ditch or open drain.
- pawah*—hiring out of land for half the crop.
- pēlumat*—(Kēdah and Pērlis) a cattle-drawn smoothing implement made by fitting the tines of a harrow into holes in the trunk of a banana tree.
- pēnggawa*—(Kēlantan) headman.
- pēngbulu*—headman.
- pēnyisir*—(Kēdah and Pērlis) a cattle-drawn harrow.
- pērdua*—(Nēgri Sēmbilan) rent in service, a privilege extended only to members of the family or of the same clan or tribe.
- pērmatang*—bank, rising ground.
- pēr-tiga*—(Nēgri Sēmbilan) rent in cash or kind, equivalent to one-third of the value of the yield.
- pinjaman*—a system of mutual help by which neighbours assist one another not for cash or kind but in return for meals.
- pisau pēnggaya*—(Kēdah and Pērlis) reaping sickle.
- pisau pēnuai*—(Kēdah and Pērlis) reaping knife which cuts the ears of padi singly and which is therefore used in the selecting of grains for seed.
- pondok*—residential clubhouse.
- pulut*—glutinous rice.
- rumah bēsar*—(Nēgri Sēmbilan) a large room to the rear of the *rumah sērambi* (q.v.). Usually partially curtained off and used as bedroom.
- rumah bilēk*—(Nēgri Sēmbilan) bedroom.
- rumah dapor*—(Nēgri Sēmbilan) kitchen.
- rumah kēpoh*—(Nēgri Sēmbilan) barn.
- rumah pangkar*—(Nēgri Sēmbilan) bedroom.
- rumah sērambi*—(Nēgri Sēmbilan) a closed verandah for the entertainment of guests.
- sawah*—(South Malayan) land under padi.
- sērkap*—a conical trap or coop of rattan or bamboo.
- sidang*—(Malacca) mukim official.
- sisak*—(Malacca) reaping sickle.
- sungei*—(abbreviated to S. in place-names) river.
- surau*—a private mosque in contradistinction to a mosque of general assembly.
- tali ayer*—watercourse.
- tanah champor*—(Kēdah and Pērlis) loamy soil.
- tanah liat*—(Kēdah and Pērlis) heavy clay soil.
- tandop batu*—concrete weir.
- tandop sēmantara*—wooden dam.
- tanggok*—landing-basket for fish.
- tēnggala*—(Kēdah and Pērlis) plough.
- tong banting*—a portable wooden box against the side of which padi sheaves are beaten as a means of threshing.

tumbok—a hand-operated pestle-and-mortar device for loosening padi husks preparatory to milling.

tuai—a small reaping knife, consisting of a crescentic wooden frame in the outer centre of which a blade is fixed. The frame is held in the hand and the stalks drawn against the blade between the fingers in such a way—so the farmer believes—that the rice-grains do not see the knife and their virtue is not dissipated through fright.

tuak—toddy, palm-wine.

tudong—cover.

tugal—properly a pointed stick for making holes in dry soil; (Kēlan-tan) light-soiled land.

unting—handful of rice seedlings for planting out.

usong rumah—(Kēdah and Pērlis) the lifting of a house in its entirety from one point to another.

wakaf—mortmain; in mosque-ownership for religious objects; (Kēlan-tan) rest-house.

The principal local measures of weight, capacity and area, together with their English equivalents, are as follows:—

The *chupak* = 1 quart.

The *gantang* = 1 gallon.

The *tabil* = $1\frac{1}{3}$ oz.

The *kati* (16 *tabils*) = $1\frac{1}{3}$ lb.

The *pikul* (100 *katis*) = $133\frac{1}{3}$ lb.

The *koyan* (40 *pikuls*) = $5,333\frac{1}{3}$ lb.

One *jēmba* = 64 square feet.

One *rēlong* = 484 *jēmbas*.

One acre = $1\cdot40625$ *rēlongs*.

Other weights in common use are:—

10 *buns* = 1 *chi*.

10 *chi* = 1 *tabil* ($1\frac{1}{3}$ oz.).

1 *bahara* (3 *pikuls*) = 400 lb.

1 *kuncha* = 160 *gantangs*.

1 *nalih* = 16 *gantangs*.

1 *gantang* of padi = 5 lb.
approximately.

1 *gantang* of rice (milled) = 8 lb.
approximately.

EXCHANGE RATES

One Malayan \$ = 2s. 4d. sterling.

= U.S.\$0·33.

£1 sterling = M\$8·57.

One U.S.\$ = M\$3·06.

FOREWORD

The whole of this Journal is devoted to further field reports of facts and conditions in some Malayan padi-growing areas.

In the Long Vacation of 1955, the Geography Department of the University of Malaya sent out four teams to continue the detailed study of padi-growing in different environments. The general purpose of the teams and the methods they used resembled those of the 1954 teams which were written up fully in "Padi Landscapes of Malaya", Volume 6 of *The Malayan Journal of Tropical Geography*. Only in detail did the later questionnaires differ from those of 1954.

Taking advantage of previous experience, the teams, which consisted largely of graduates from the Department, confined their work to selected mukims and used the administrative boundaries as limits in order to assure ready comparison with previous official records. The mukims were selected for dominantly geographical reasons with the purpose of obtaining data regarding the cultivation of padi in varied surroundings. Furthermore the mukims were this time chosen so that in area and in population they were of a size which could be worked over by teams of five or so fieldmen with adequate intensity, and the rush which occurred, for example, during the 1954 enquiry regarding the area in Krian was thus avoided.

The localities studied were:—

(1) Daerah Tanjong Pauh which, lying close to the Kēlantān coast, exemplified padi-growing in a roadless and isolated area of North-East Malaya, where the landforms are lagoons and old sandspits and the cultivation cycle is related to the heavy rainfalls and violent winds during the north-west monsoon.

(2) Mukim Padang Pauh, not far from the Pērlis coast in North-West Malaya, was chosen because there the alluvial plain on which padi is cultivated slopes relatively steeply to the sea and is subject to a distinctly dry season. Steep limestone hills here come within a few miles of the sea.

(3) Mukim Batu Hampar is a riverine area in Nēgri Sēmbilan among the foothills of the Malayan mountains, with dry laterized interfluves standing well above the flood-plain of a river, the Batu Hampar. Here, astride the main north-south highway of Malaya, padi-growing takes place side by side with rubber-growing and in the context where there are other means of earning a livelihood than those of subsistence farming and where the Sumatran matrilineal tradition of family life is strong.

(4) Mukim Balai Panjang adjoins Malacca town and has been under cultivation for at least four centuries. It lies within Malaya's most southerly region of widespread padi-growing and at the same time work on its land, here done by Malays and several clans of Chinese, is in competition with the other forms of economy available near by in the old and well-established town of Malacca, as well as in the rubber plantations further afield.

Tanjong Pauh and Padang Pauh, besides being on opposite sides of the peninsula, are both further north than any of the localities examined in 1954. Batu Hampar and Balai Panjang are both further south than the mukims studied in the preceding year.

The teams included University graduates drawn from all the Malayan communities and every member spoke at least one vernacular language: without the vernaculars, no detailed enquiry in such areas is possible. Mr. Paul Wheatley supervised the teams while they were in the field and while they were putting the reports into a form suitable for publication. Maps were drafted and prepared with the help of Mr. W. L. Dale and drawn in the Department from the field data.

These four reports are best used in conjunction with those in Volume 6 of this Journal.

E. H. G. D.
April 1957.

Unless otherwise indicated maps are
oriented to the north.

All prices are in Malayan dollars.

PART I

DAERAH TANJONG PAUH

KELANTAN

CHAPTER I

THE LAND

The Kēlantān Delta forms a rough quadrant-shaped alluvial lowland in the extreme north-east of Malaya, adjoining the South China Sea.¹ That part chosen for detailed geographical survey is the Daerah² of Tanjong Pauh, lying well to the east of the main Kēlantān River and a mile or so inland from the little fishing town of Bachok (Fig. 1).

Like the whole delta, this daerah has a lightly modelled surface showing two physical features: (i) an alternation of sandy ridges and lagoons roughly parallelling the coast; and (ii) the meanders of rivers and distributaries flowing seawards from the south and west. Tanjong Pauh has rivers as its eastern and western limits and arbitrary east-west boundaries on its north and south. The eastern and western belts of land in the daerah are low-lying, infilled lagoons separated by an old sandspit rising 15-20 ft. above their present levels. Tanjong Pauh includes only small parts of lagoon floor on its east, which contains the Sungei Kēmasin, and a much broader zone of old lagoon to its west where the stream is known as either the Sungei Pēngkalan Stor or the Sungei Bēklam but is morphologically a distributary of the Kēlantān River (though it becomes a tributary of the Kēmasin a little to the south of this daerah).

That an old sandspit dominates the morphology of this unit means that its circumstances should be compared with those in Mukim Four, Bukit Mērtajam, as reported in this *Journal*, vol. 6 (1955), pp. 9-36 and plates 2-20. It is to be noted that, while the old sandspit is generally known as *pērmatang* in West Malaya, this term is not generally used in Kēlantān. Over half this area is formed of old sandspit, arranged slightly askew of a north-south line and higher to the west than to the east. It has a sharp and visible break of slope down to the lowland on either side, and its surface has a number of narrow lengthwise depressions some four or five feet deep which appear to mark stages in early modelling of the spit by the sea or which may even be 'slacks' between fixed dunes (Fig. 3A). Locally the wide river flood-plains to the east and west are called *baroh*, characterized by their extent and their dark-brown clay soils, while the depressions in the sandspit are called *alor*. Upper levels on the old sandspit are here called *gong*, the specially wide and level stretches of which are named *padang*. Additional to the great sandspit through the middle of the daerah there are smaller isolated features of the same type in the broader part of the north-western baroh. The state of survey in this daerah is such that though there are large-scale lot-maps (at 2 chains = 1 in.), these do not represent true 'survey for title' and there is no spot height or trigonometric station anywhere. It was also observed that though the official area of the daerah is given as 4.62 sq. miles, the total area of lots as calculated from the lot-map is 5.6 sq. miles, the mukim of Tanjong Pauh containing 873.3 acres, Pak Pura 1,815.1 acres and Tanjong Jering 908.8 acres.

1. There is a general description in E.H.G. Dobby, "The Kelantan Delta", *The Geographical Review*, vol. 41, no. 2 (New York, 1951), pp. 226-55.
2. The *daerah* is an administrative unit peculiar to Kēlantān and consists of several *mukim* or parishes. Several *daerah* form a *district*. Tanjong Pauh consists of three mukim called Tanjong Pauh, Pak Pura and Tanjong Jering (Fig. 2).

No permanent streams exist in the main sandy sector but the alors in the wet season contain some running water from local run-off. The general flow of this seasonal run-off is eastwards, discharging chiefly as the Sungei Tengkarak and Anak Sungei into the Kemasin (Fig. 5). The distributary (Sungei Pengkalan) forming the western boundary of the daerah always contains some water though it may at times be almost a series of stillponds—which explains why the nomen-

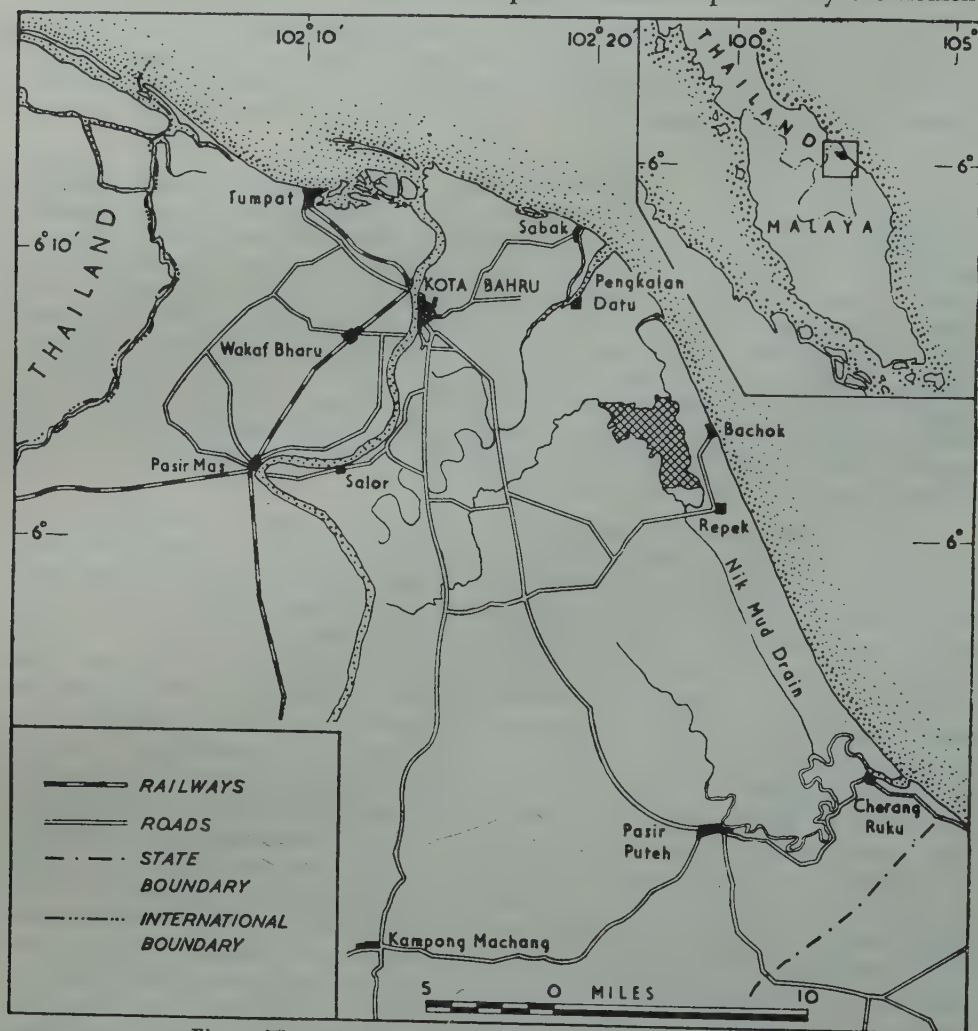


Fig. 1. The position of Daerah Tanjong Pauh in Kelantan.

clature is discontinuous. Flow there is from north to south. The Kemasin River has only a small catchment area to the south but its water flows from south to north and its greater movement is a factor in the development of less complex meanders. Both these major water-lines are subject to daily rise and fall due to the penetration of tidal water which sweeps in from the north-east, much of its impetus being lost by the time it reaches the north-western stretches of the distributary. Both the Kemasin and the Pengkalan have formed small natural levees rising a foot or two above the general level, features emphasized by the *nipah* palms lining the banks for most of their lengths and supplemented by man-made banks along

about a sixth of the Pěngkalan (Fig. 5). At breaks in the bunds and levees are small plank culverts (seven altogether) which represent the only means of water control, here the purpose being chiefly to exclude saline river water during the drier periods when ground-water in the fields is very low. In the wet season (Oct.-Mar.) heavy local rains combine with the effects of violent on-shore seas at the Kěmasin mouth to upset the normal discharge of surface water, with the

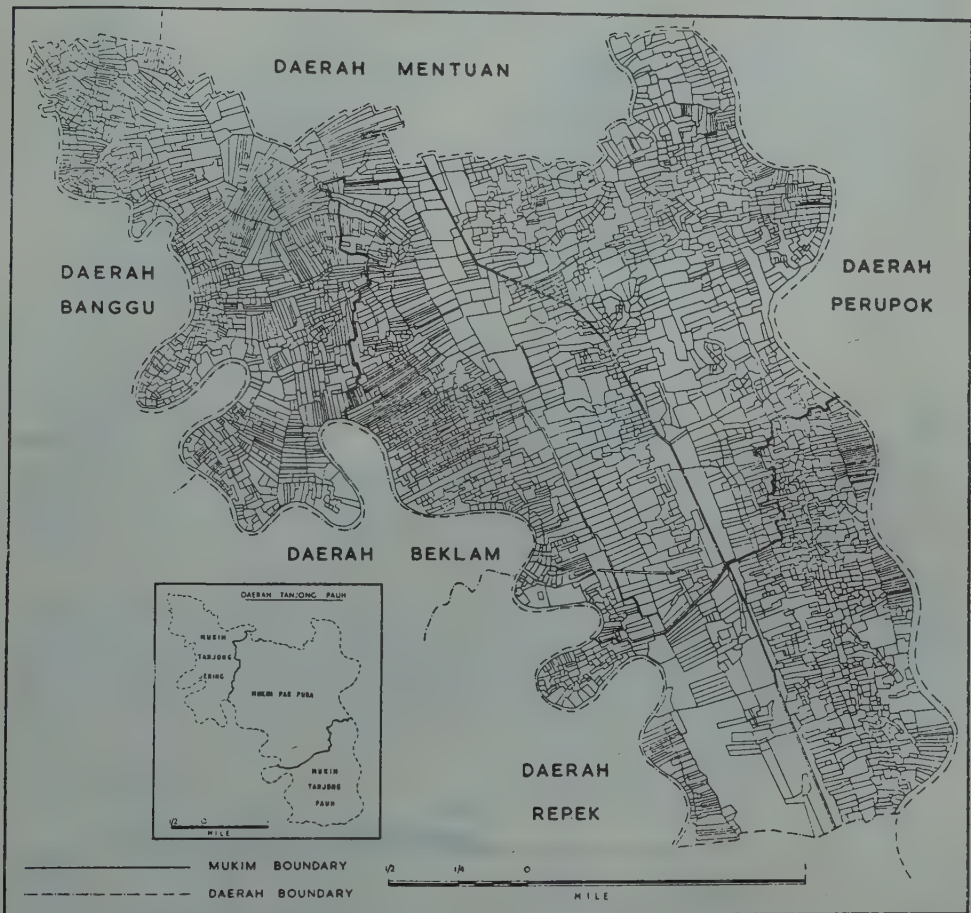


Fig. 2. Daerah Tanjong Pauh: mukim and lot boundaries.

result that all the lowland westwards of Tanjong Pauh is flooded a foot or two deep. The water rises well above the tops of the culverts, and only the gong is dry, though even there the alors carry water moving as irregular, mostly nameless streams generally known as *parits*. These variations of water conditions in the daerah set the problems which dominate land use. For this daerah no meteorological records are kept and there are no instrumental data regarding the levels of water or the flow of streams.

Floods then are an annual event but they vary in depth from year to year. Local people still speak of 'the red flood' (*ayer merah*) of 1926, when water rose until even the top of the gong was awash. They report that once every three or four years there is a deep flood (*ayer bēsar*) as compared with the lesser floods

(*ayer kēchil*) of the other years. Here, however, the flood waters are local, with only secondary effects from overflow floods from the Kēlantān River which lies several miles to the west and normally limits its discharge to the Pēngkalan. Though it is impossible to get local data accurately distinguishing the two influences,

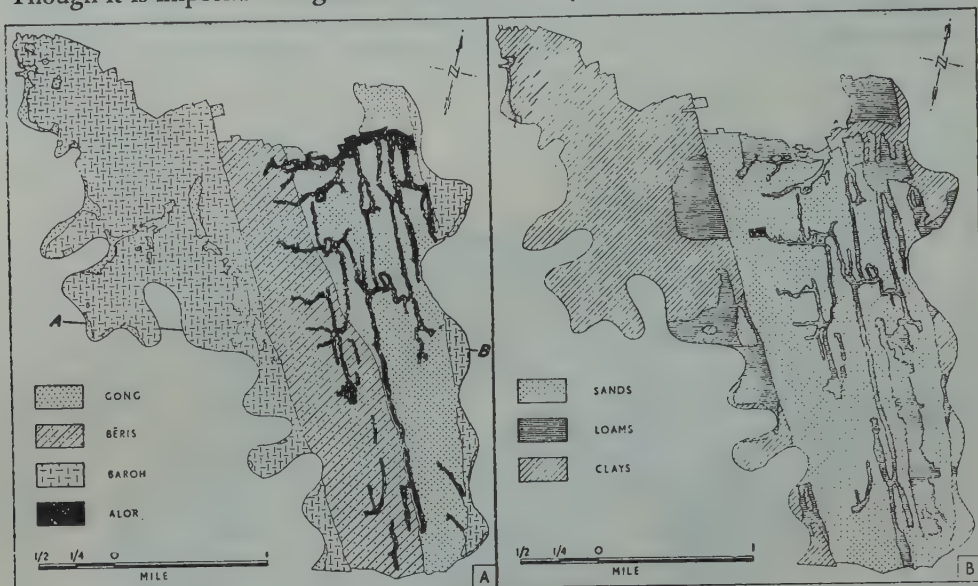


Fig. 3. Daerah Tanjong Pauh: A. Morphology. A-B is the line of the section shown in Fig. 4. B. Soils. The lot shaded black marks the location of the soil profile shown in Fig. 6.

tides produce a daily variation of about 8 ft. in the levels of the main river and seasonal run-off from the heavy and often continuous rain from November to January tends to vary those levels by about 10 ft., the combined effects being very complex from time to time. The barohs frequently flood to a depth of five feet at which time the alors contain long narrow stretches of ponded water.

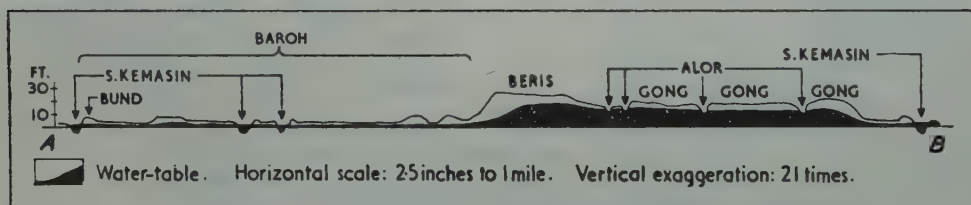


Fig. 4. Topographical section across Daerah Tanjong Pauh. For the direction of A-B see Fig. 3.

Temperature in this area is high all the year. The maximum mean monthly temperature of 82.3°F occurs in April, and the minimum of 78.4°F in December. The mean annual temperature is 80.4°F . The mean annual rainfall is 98.2 in., half of which falls in the three months of November, December and January. The wettest month is January with an average fall of 24 in. April is the driest month with only 3 in. of rain. The relative humidity ranges between 82% in April, when the temperature is high and the rainfall low, and 88.2% in November and December when the temperature is at its lowest and the rainfall high. During the wet season of the North-East Monsoon (Sept.-Jan.) there is an average of only 5.9 sunshine hours per day. In the drier season (Feb.-Aug.) the average rises to 7.67 hours per day.

Scarcely any natural vegetation remains in the daerah. Some nipah lines the Kĕmasin in belts 20 or 30 ft. wide, retained in part for their service of protecting the banks. Some small clumps of nibong (*Oncosperma tigillaria*) and bamboo are scattered about and meet a few domestic needs. Hedges of mĕngkuang (*Pandanus tectorius*) are widespread and, besides serving as property markers, are extensively used for making the baskets and mats which are staple domestic articles. Here and there are a few gĕlam (*Melaleuca leucadendron*) and sisek puyu trees (*Carallia suffruticosa*) which provide firewood, and various other trees provide a little shade for houses and a reminder of what was once undoubtedly an extensively wooded area. Today, apart from coconuts, the landscape has been cleared and stands open and bare.

CHAPTER II

THE PEOPLE

A house-to-house count extending from June to September 1955 showed that 3,530 people were living in this daerah of 5.6 sq. miles and their houses were distributed very unevenly (Fig. 7A). Over 80% of the houses are on the gong

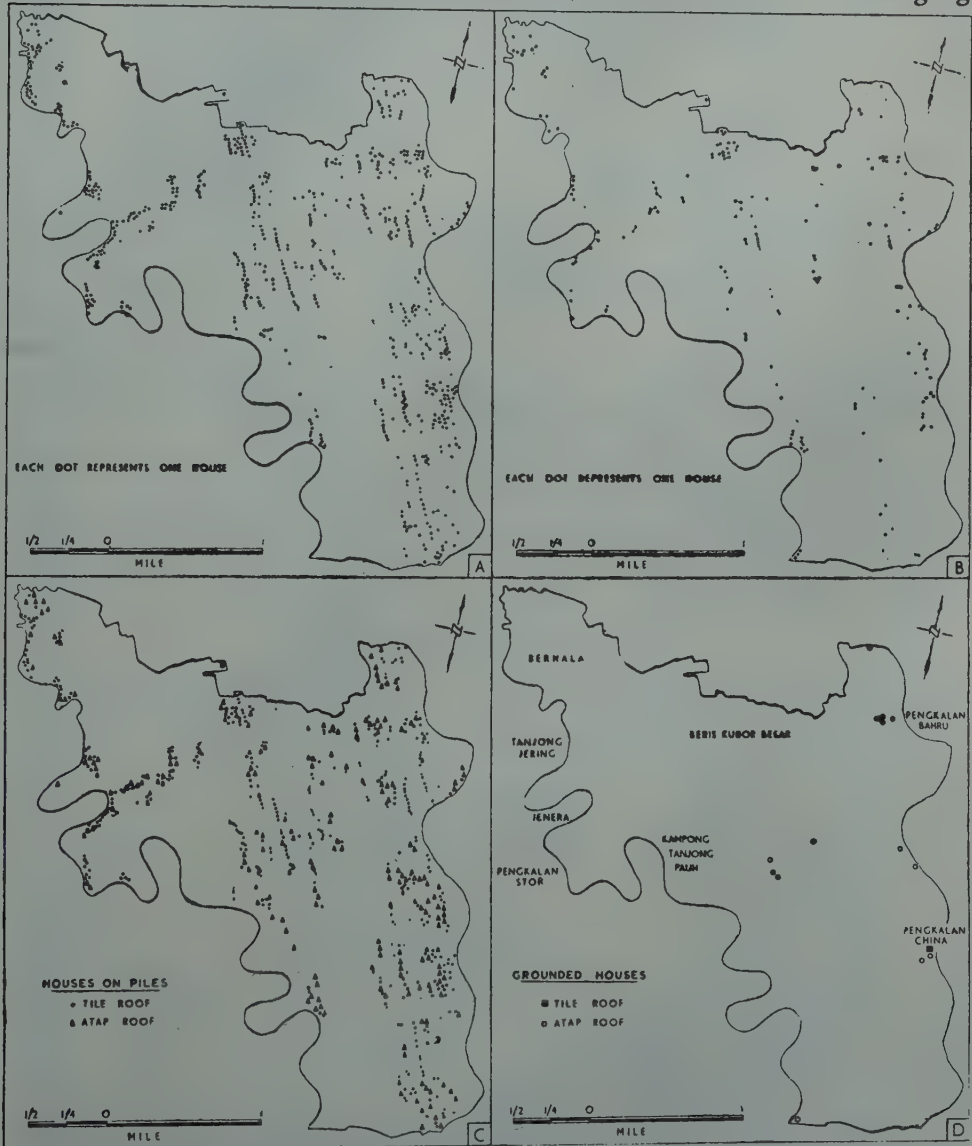


Fig. 7. Daerah Tanjong Pauh: distribution and types of houses. A. Distribution of houses. B. Houses built after 1945. C. Houses on piles. D. Grounded houses.

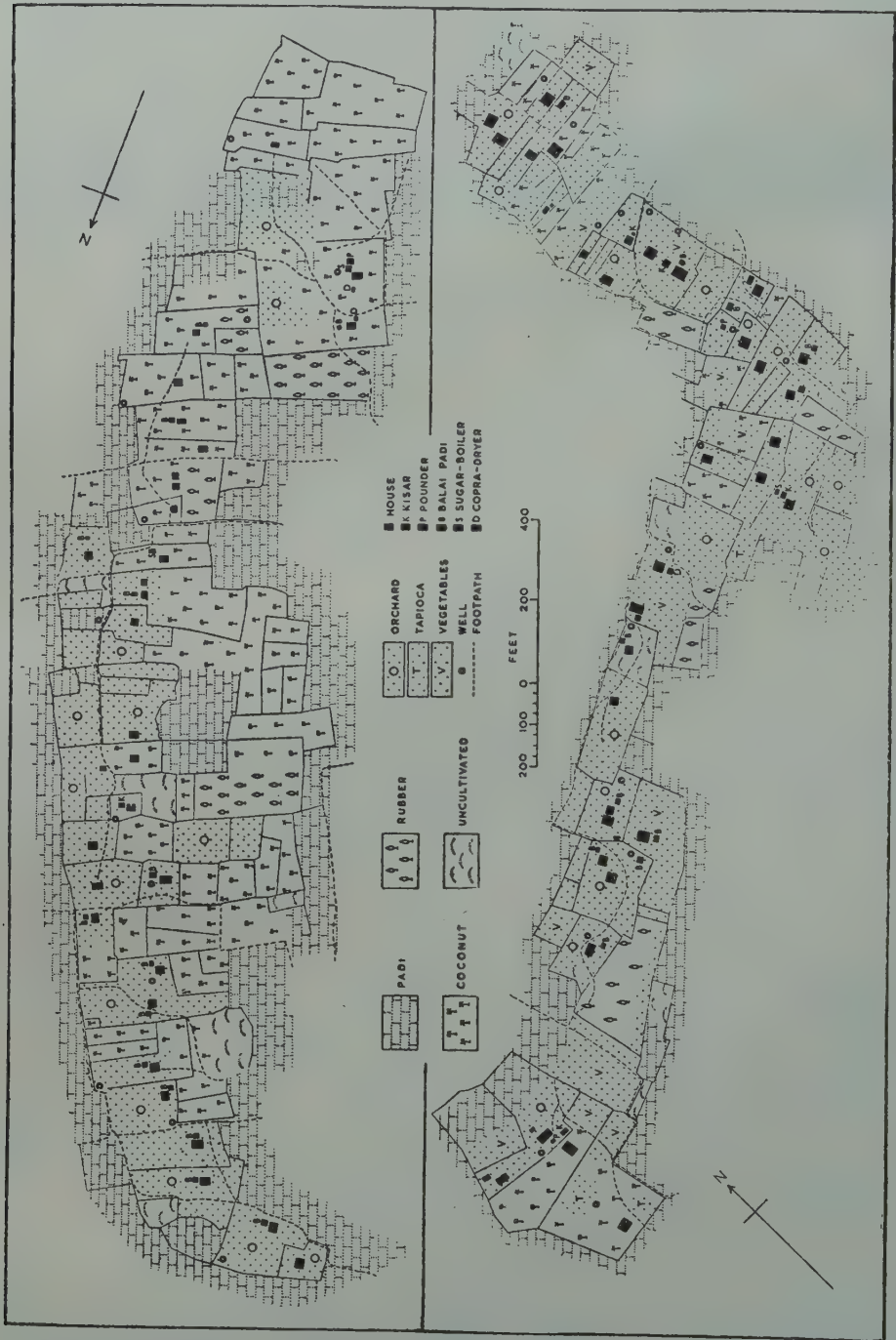


Fig. 8. Typical linear settlements. Upper. Kampong Tanjong Pauh. Lower. North-east of Kampong Jênëra. Note the houses following the belts of *kampong*, under orchards, tapioca and vegetables, between the padi-fields.

proper, the rest are in groups close to those levees of the Pēngkalan which form the borders of the daerah to the north-west (Kampongs Berhala, Tanjong Jēring, Pēngkalan Stōl, etc.). Within the higher sandy region houses are distinctly dispersed but, even so, chiefly arranged in north-south lines following the forms of the gong and alor (Fig. 8). Upon the broader, loamier and flood-free gong of the south-east, the house-density is greater than elsewhere, but the belt of whitish, loose sand in the south-western quarter of the gong is almost unoccupied. Each line or clump of dispersed houses is called a *kampung* or village, though it does not form an administrative, political, commercial or religious unit. One

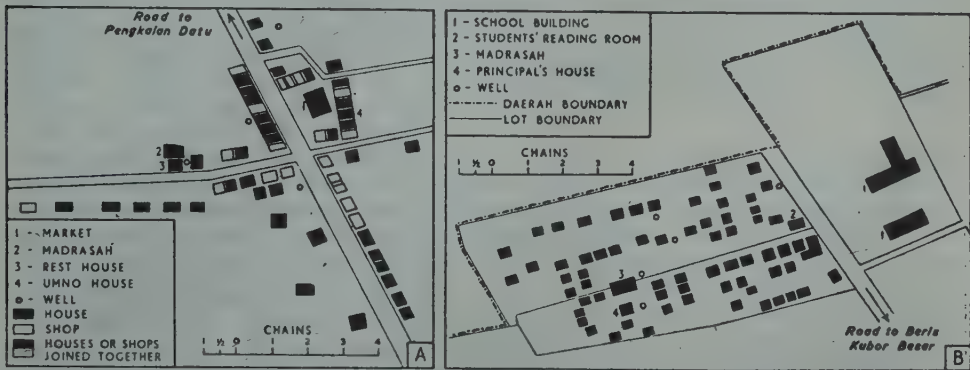


Fig. 9. Kampong Bēris Kubor Bēsar. A. The main part of the village grouped about the intersection of north-south and east-west tracks. B. The *pondok*, a residential religious school.

distinctive nucleation is Kampong Bēris Kubor Bēsar, a crossways settlement of houses and shops where a jeep-track from east to west crosses a track from north to south along the spine of the gong as a whole (Fig. 9). Near this focal unit is a *pondok* or residential, religious school (the Indra Putra Arabic School) distinctive for the cluster of forty or so one-roomed huts where the Muslim acolytes live.

POPULATION STRUCTURE

Tanjong Pauh was found to be inhabited exclusively by Malays and in this respect is unique among the units we have surveyed over the past two years. Few other well-settled localities in Malaya can claim the distinction that no Chinese,

TABLE 1: DAERAH TANJONG PAUH: CLASSIFICATION OF HOUSES BY STYLE

MUKIM	TOTAL	BUILT AFTER 1945	STILTED	GROUNDED	TILE	ATAP	UNITARY	MULTIPLE
TANJONG PAUH	183	55	183	5	107	81	163	25
PAK PURA	513	219	475	38	284	229	450	63
TANJONG JERING	167	68	167	—	75	92	147	20
DAERAH TANJONG PAUH	868	342	825	43	466	402	760	108

Indian, Eurasian or European lives there. The older people of the daerah recalled that half a dozen Chinese families lived there in the nineteen-twenties; the Kampong China (on the S. Kēmasin to the south-east) recalls that association but the families moved out to live across the river in the daerah of Bachok. No reasons for that departure by the immigrant group could at this late date be discovered.

The 3,530 Malays of Tanjong Pauh live in 868 houses: another 81 were unoccupied and only 9 under construction in July 1955, indicating a decline in the number of families. At the same time it must be noted that 342 of the 868 occupied houses (Table 1) were reported to have been built since 1945 (the team

used the Japanese Occupation as an easily understood date to avoid difficulties due to bad memories, lack of accounts and confusion between the Muslim and Gregorian calendars).



Fig. 10. Daerah Tanjong Pauh: the main settlements c.1900. Based on information obtained locally.

The household questionnaires are the basis of the population estimate of 3,530. It differs from that reported in the 1947 census which recorded 3,743 people.¹ The difference of 213 in the totals over the eight-year period might be a clerical discrepancy rather than the sign of a significant decline, but the household enquiry also reports the departure of 253 adults since the Japanese Occupation (i.e., after 1945), 193 of these having gone to other parts of Kēlantān, 18 to Siam, a few to Kēdah, and the rest mainly to the near-by town of Bēsut. A net decline of population seems conclusively demonstrated. In this context it is relevant to note the preponderance of females in the structure of population over the age of twelve and their

proportion is even greater if we exclude the males of the religious school who are mostly from homes outside this daerah. While the average per household is 4.1 persons, only 1.5 of these are children below twelve years old (Table 2).

TABLE 2: DAERAH TANJONG PAUH: SEX RATIO OF POPULATION

MUKIM	MALE	FEMALE	CHILDREN UNDER 12	TOTAL
TANJONG PAUH	228	261	288	777
PAK PURA	633	656	752	2,041
TANJONG JERING	195	236	281	712
DAERAH TANJONG PAUH	1,056	1,153	1,321	3,530

Older inhabitants report that about fifty years ago very few people lived in the daerah and these were concentrated in the kampongs shown in Fig. 10, which names four (Pēngkalan Chēngal, Tanjong Pauh, Pak Pura, Kēluat) now without much significance as house-groups (Cp. Fig. 7). The evidence suggests that Kampongs Jēnēra, Pēngkalan Stol, Pēngkalan Bharu and Pēngkalan China, and the pondok are settlements which have assumed greater significance over the last fifty years. It would also appear that the river levees have attracted the newer house-groups during this century.

1. M.V. del Tufo, *A Report on the 1947 Census of Population* (London, 1949), p. 155.

A seasonal migration takes place in this part of North Malaya and has its influence in disseminating that kind of information which facilitates permanent migrations. In December and January, when local rains and floods prohibit any local field-work, there is a movement of adult farmers to places where there is no enforced idleness. During 1954 in this daerah alone 145 border passes were issued to enable men to move across into Siam for work as house-builders, rubber-tappers or padi-harvesters. Since it is necessary to cross the Siamese border in order to reach Kēdah, the rice-growing state of North-west Malaya, it is not clear whether these migrants all worked for a time in South Siam or whether some went into Kēdah. The seasonal absence is for periods of less than about three months during which the families remain in this daerah. It was reported that the migrants bring back \$160-180 to support themselves during the next Kēlantan ploughing season. The migrant of this class sometimes leaves the daerah to open new padi-fields in other parts of the state, at first leaving temporarily and finally transferring his family when the new fields have been developed.

That Tanjong Pauh has a uniform communal structure leads to a high degree of uniformity in house form. As Table 1 shows, only 5% of the houses are unstilted and with the lower floor on the ground itself: this same number consists largely of shops and public buildings (schools, mosques, etc.). The height of the stilts varies according to position, low-lying locations having houses with higher stilts to offset the deeper floods and they may even possess small boats against the same contingency. There is a similar uniformity in design, seven out of eight houses being units under one roof and the rest under two roofs connected by a covered way. Wood is the universal material for houses with an exception in only one respect: about half the houses are roofed with locally made tiles, the others with a thatch of nipah leaves. No clear pattern can be traced in the distribution of the different house types (Fig. 7C and D).

People in stilted houses use the area beneath them as occasional shelter for domestic animals and general store-places. The feet of such houses are of small concrete or wooden blocks. Local roofing tiles are bent at one end to form a hook for fixing the tile on a transverse rib of nibong wood. Tiled and atap roofs have much the same pitch (40-45°) and the tiled style is becoming more general, reputedly because it lasts longer. House-walls are most commonly of plaited split-bamboo constructed in sections of 15 x 10 ft: windows are difficult to fix in this form of wall and consequently are not often present except in the few houses whose walls are of planks. Every house includes a form of verandah which is the chief living-place; the inner room, almost enclosed and lightless except for the doorway, is for sleeping. Most houses have some means of collecting rain from the roof. House-building is going on sufficiently continuously to help support 28 builders in this daerah alone: these combine such work with farming their own land. Neighbours lend a hand in the labour of building in return for free meals while doing so.

CHAPTER III

PADI

Though dry, sandy gong forms so large a part of the landscape in Tanjong Pauh, three-quarters of the daerah is used agriculturally and of this over half is under padi, the greatest single stretch being in Mukim Tanjong Jering towards the north-west, where lies four-fifths of all padi-land (Table 3). Nearly 90% of padi-land is for the wet crop, there being only 236·2 acres usually in dry padi.

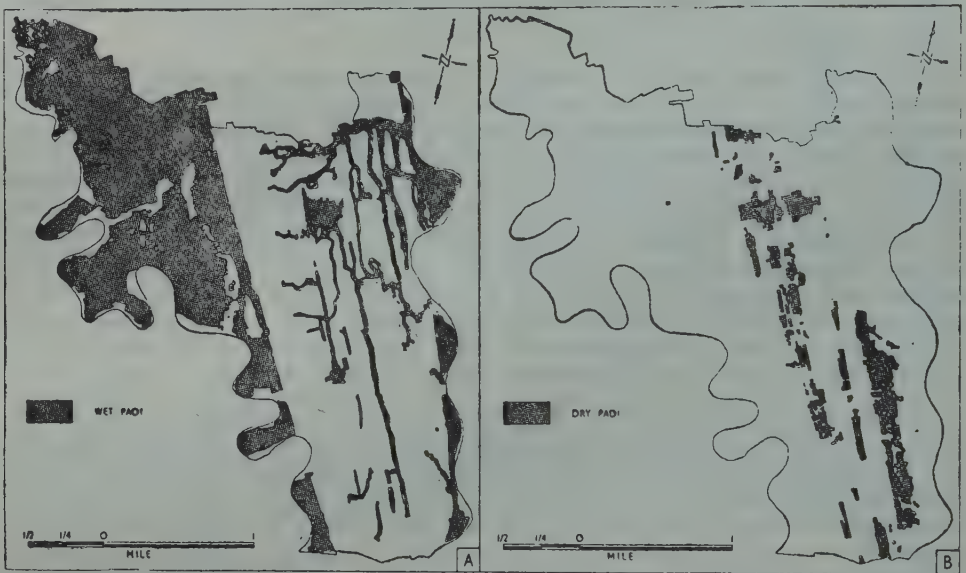


Fig. 11. Daerah Tanjong Pauh: distribution of padi-land. A. Wet padi-land (*sawah*). B. Dry padi-land.

The distribution of wet padi (Fig. 11A) brings out clearly its location at the bottom of barohs and alors and the abrupt change of agricultural conditions on the gong.

TABLE 3: PADI-LAND IN DAERAH TANJONG PAUH

	MUKIM TG. PAUH ACREAGES	MUKIM PAK PURA ACREAGES	MUKIM TG. JERING ACREAGES	DAERAH TANJONG PAUH	
				ACREAGES	% OF AGRICULT- URAL LAND
WET PADI	193·0	679·7	760·9	1,633·7	58·5
DRY PADI	129·5	106·7	NIL	236·2	8·5
TOTAL PADI	322·6	786·4	760·9	1,869·9	67·0
TOTAL CULTIVATED	611·2	1,322·9	859·1	2,793·2	100·0
TOTAL	873·3	1,815·1	908·8	3,597·2	—

As Table 4 shows, the questionnaires demonstrated that three-quarters of the households are chiefly or exclusively engaged in padi-planting and only 41 out of the total of 868 households are involved in padi-growing outside the daerah, whose boundaries therefore serve to mark a natural limit of local activity and movement.

TABLE 4: HOUSEHOLDS ENGAGED IN PADI CULTIVATION IN DAERAH TANJONG PAUH

MUKIM	NO. OF HOUSEHOLDS	HOUSEHOLDS ENGAGED IN PADI-PLANTING WITHIN THE DAERAH	HOUSEHOLDS ENGAGED IN PADI-PLANTING OUTSIDE THE DAERAH	NO. OF HOUSEHOLDS NOT ENGAGED IN PADI-PLANTING
TANJONG PAUH	188	139	17	32
PAK PURA	513	327	18	168
TANJONG JERING	167	136	6	25
DAERAH TANJONG PAUH	868	602 (69.5 %)	41 (4.8 %)	225 (25.9 %)

The further analysis in Table 5, which is devised on the assumption that all persons over twelve in a padi-planting household at some time take a hand in the field-work, shows that 1,862 persons take part in padi-farming in the daerah, this representing about 85% of all adults. (The local headman or *penggawa* estimated the total was 2,280 on 1st June 1955, a figure greater than the total number of people over twelve in the whole daerah).

As a landscape feature the padi-land is everywhere divided by ridges about nine inches high which mark the limits of holdings and exercise a degree of control over surface water. There are no channels for irrigation or drainage and the whole padi-land is dependent on direct rainfall together with natural inundation and the overflow of streams, even though this brings the risks associated with brackish water which, if it remain for long, reduces the yield of padi. The alors are bunded as well as the barohs, the need for retentive devices in the former being the greater because they are at a slightly higher level and surrounded by porous beris. No bunds are present on fields used for dry padi—such fields never have standing water in them, largely because the sub-surface runaway through the gong is fast despite the slightly loamy character of the padangs, where dry padi is possible.

TABLE 5: PADI-FARMERS OF DAERAH TANJONG PAUH

MUKIM	CULTIVATORS WORKING WITHIN DAERAH		CULTIVATORS WORKING FIELDS OUTSIDE DAERAH		TOTAL NO. OF CULTIVATORS	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
TG. PAUH	429	498	20	22	449	520
PAK PURA	205	229	20	21	225	250
TG. JERING	180	210	7	21	187	231
DAERAH TG. PAUH	814	937	47	64	861	1001

The commonest strains of wet padi in use here are :

1. *anak naga*, which needs to be in the field for from five to six months and yielded 315 gantangs per acre in the season 1954/5 (according to the local Agricultural Officer).

2. *nalong*, whose term is $7\frac{1}{2}/8$ months for a yield giving 276 gantangs per acre.
3. *morak sēpēlai*, whose term is $7\frac{1}{2}/8$ months for an average yield of 190 gantangs per acre.

Other strains in use and their local average yields per acre are: *mayang sēmpai* (187 gantangs), *lambak* (275 gantangs), *jintan puteh* (286 gantangs), *Kēdab* (266 gantangs) and *anak ikan* (187 gantangs). The yields indicated are all the result of test cuttings by local agricultural officers on selected plots of 1/180 acre upon the holdings of farmers working in their usual manner.

Strains of dry padi used locally are called *jintan puteh*, which was reported to have yielded 180 gantangs per acre in the 1954/5 season, *jintan manis* (85 gantangs), *mayang ambor* (100 gantangs) and *muar pakdob* (85 gantangs). Two test cuttings of *mayang ambor* treated with fertilizer, however, in Padang Mēlintang and Bērhalā yielded 296 and 365 gantangs per acre respectively, indicating how widely the dry-padi yield varies according to local conditions: its wide variation of yield according to the incidence of local rainfall is so great that averages are difficult to interpret. The official estimate for dry-padi yield in the whole daerah for 1954/5 was 114 gantangs per acre. The farmers report that abundant water during the growing period, deep clay soils and few uncultivated lots to harbour rats combine to give the barohs of Mukim Tanjong Jēring the highest wet-padi yields in the Daerah. In a similar environment along the eastern border of the Daerah, yields are reduced by frequent incursion of Kēmasin flood-water. The lowest yields are from Padang Mēlintang in the north of the same mukim, where leaching of surface horizons has left the soils relatively infertile. Dry padi-lands nowhere exceed moderate yields and are especially poor on lots along the edge of the bēris and on the sandy padang, where the effects of a low water-table are aggravated by the porosity of the soil. Under such conditions yields of dry padi depend chiefly on the amount and incidence of annual rainfall.

CYCLE OF PADI ACTIVITY

As elsewhere in Malaya, a local committee sets dates for the daerah peasants to undertake their field tasks. In 1954 sowing of the wet-padi nurseries was prescribed to take place within the comparatively dry period between 1st July and 31 August and transplanting from 15th August to 31st October. From the household questionnaires it was apparent that the cycle in the season 1954/5 was actually as follows:

Tilling the nursery	-	-	-	July.
Sowing the nursery	-	-	-	late July and early August.
Preparing the fields	-	-	-	August to early September.
Transplanting	-	-	-	mid-September to early October.
Harvesting	-	-	-	late February and March.

The heaviest rains in this season occurred in November and December.

Here the cycle of work for padi is phased in relation to the rainfall required and not to the cycle of river overflow. Local convectional rains about mid-year are essential as a preliminary to field-work because they serve to soften the surface which on the clays of the barohs may bake so hard as to be virtually unbreakable by local implements.

Only one cycle of padi cultivation takes place each year on any one field. There is no local experience of double-cropping and farmers report the rain inadequate and the soil too poor for a second crop to be possible.

Dry padi is grown only on the upper levels of the *gong* (Fig. 11B). It is most continuously cultivated in a belt on the broad padang to the south-east and with lesser continuity round Kampong Pak Pura. This crop, standing on the loamy parts of the sandy sector, is critically dependent on direct rainfall and fields of it never have standing water in them. The local convectional showers of late June and early July provide conditions essential for ploughing and by mid-July the seeds can be dibbled in. The crop is well advanced during the November-December rains and harvested about a month in advance of local wet padi. That is a feature of dry padi which attracts local interest: it provides an earlier renewal of rice supplies and spreads the need for work in the field.

FIELD PROCESSES

(1) *Wet Padi*

Seeds are set aside from the previous year's crop at the rate of five gantangs for every acre to be planted out with wet padi. The seeds start their growth in small plots chosen partly for being in a moist position (as in alors and barohs) but more particularly for their proximity to the farm-house, because the early stages of growth involve careful watching by women or children to prevent fowls, birds and oxen from destroying them. The nursery plot is ploughed two or three times and harrowed to a fine tilth. Fertilizer of any kind is scarcely ever used. The early stages of growth in the nursery depend entirely upon local convectional rains for which the showery period of August is important. The seedlings are transplanted from the nursery after forty or forty-five days.

Ploughing of the actual padi-fields is done exclusively by men who use home-made ploughs and harrows. The local word for plough is *gēgala* and for harrow *gērak*. Both are made by local craftsmen using *tēmbusu*, *mēndang* and

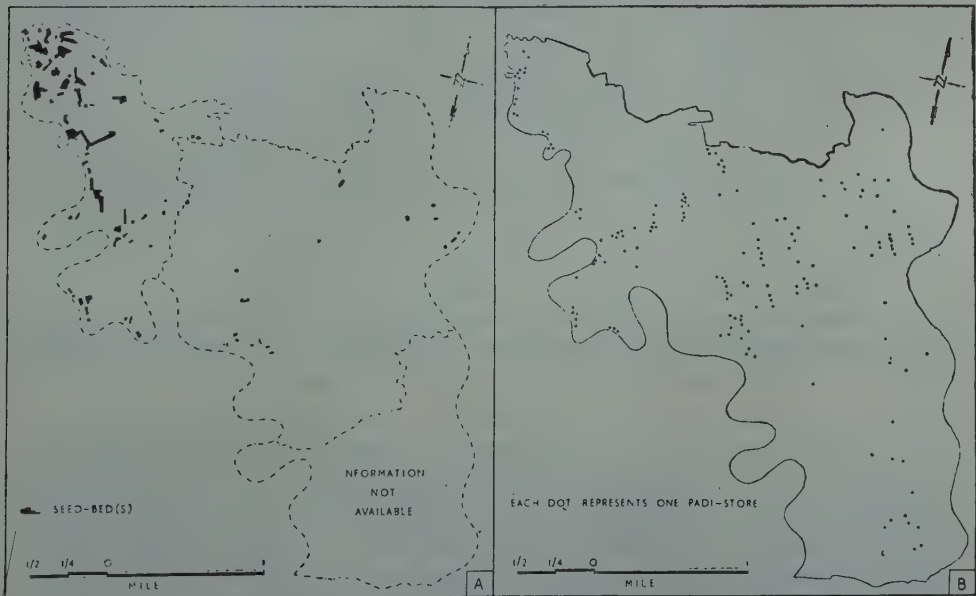


Fig. 12. Daerah Tanjong Pauh. A. Distribution of seed-beds at the time of the survey. Mukim Tanjong Pauh was visited in June, before seed-beds had been prepared. Mukim Pak Pura was surveyed in mid-July and Mukim Tanjong Jēring at the end of that month. B. Distribution of padi-stores.

lěmbang woods. The iron blade of the plough is bought in Bachok or Kota Bharu and cannot be made locally. Some ploughs are drawn by a single buffalo and others by a pair of oxen. The heavy clays of the barohs are more commonly ploughed by buffalo and lighter soils by oxen. In the very wet parts of the lower barohs even buffalo are in difficulty and the surface has to be worked with the *changkul* or local hoe. Fields are gone over at least twice at this phase with the plough. Bunds are repaired after ploughing and harrowing. Wild grasses appear on the padi-fields and remain up to the time of ploughing as the chief grazing places for cattle. The harrow, which is a rough wooden implement weighted down either with pieces of rock or by the farmer standing on it, is used only once to break up the clods after ploughing.

Transplanting of the seedlings from the nursery is done after the ploughed fields have a depth of about a foot of water standing on them. Many fields have much more water than this at the time they are transplanted and it is considered safe so long as the seedlings are tall enough to have their tips out of the water. The young plants are moved from the nursery to the fields in bundles and about half a dozen seedlings are thrust into the soft ground with the fingers of every available adult from the household. Customarily the farmers find it unnecessary to weed the transplanted rice at any phase.

Harvest likewise requires all adults in the family to lend their help and no hired labourers are used. Two local systems of mutual help at this period of heavy work have been evolved. One system, the *běnderau*, is the simple one of neighbours helping one another without payment in cash or in kind but in return for similar help on one another's fields. The other system is the *pinjaman* by which the helpers receive all their meals while helping. Neither system involves money payment. All harvesting is done by hand with the small implement called a *tuai* in most parts of Malaya but in the local dialect *kětaman*. Each ear is cut separately. The rest of the plant remains in the ground and is grazed over by cattle for several weeks and also allowed to rot if not eaten, thus forming the only replacement process. Baskets or bags of plaited *měngkuang* are used and the movement is exclusively along the bunds. The movement over the bunds is one of the reasons why they have to be repaired before the next season. The padi remains in the ear for storing, the ears having first been dried in the bright sunny period of March and April. After the harvest most fields remain fallow until the next season and it is most unusual for any to carry short-term crops such as vegetables.

(2) Dry Padi

Plots on the padang, after being slashed during late June, are first ploughed in much the same way as for wet padi. Removing the grasses and weeds, however, is a greater problem and takes place after harrowing. It is done by women.

After the surface preparation, holes two or three inches deep are dibbled in the soil with a planting stick (*kayu pěnyuchok*) which is long enough to permit the dibbling to be done by a man moving upright across the fields. Five to ten padi seeds are then dropped into each hole and covered with a little ash mixed with earth. A serious problem at seeding time and when young shoots appear is the attack by birds against which women, children and scarecrows stand guard. Weeding becomes necessary a month or two after the seeds have gone into the ground but is usually done not more than once a year on any one field. The other processes connected with dry padi are the same as for wet padi.

DEHUSKING

Threshing the padi out of the ear is only done in small units and casually throughout the year according to the daily needs of a household. The processing involves stamping on the ears with the feet or beating the ears with short poles.

Separating the grain from the ear is entirely a manual process. The mixture is poured from shoulder level on to a mat to allow the wind to blow away the husks. This operation is done close to the house and makes use of the strong local sea-breezes in summer and the strong north-westerlies in winter. Nowhere in the daerah were even the simplest of hand-blowers ever used in winnowing.

Milling is likewise an exclusively domestic operation and no specialized rice-mill has been set up in Tanjong Pauh. Separating the rice from the husk is generally done by the housewives and again in small units so that the process goes on throughout the year. The implements used are rough locally made ones and include the *kisar*, a kind of mill made of bamboo with hardened-clay grinding faces which are sufficient to remove the husk from the rice. Loosening of the husk is done by pounding with wooden pestle-and-mortar devices, one of which is operated by foot (the *lesong indek*) and the other by hand (the *tumbok*). When the dehusking and pounding are complete the separation of the rice is effected by throwing the mixture in a large, shallow bamboo tray and skilfully using gravity and wind. No polishing is done and the pericarp remains on the rice and is eaten.

PADI PRODUCTION

From the household questionnaires it has proved impossible to separate the production returns for dry and wet padi. No household reported that it held only dry padi-land, though many held padi-land of only the wet type. Complicating the difficulty of separately assessing the crops, households could not offer any useful estimate of what was obtained from any one holding, their eye being on the amount finally brought to the domestic storehouse, whose contents are the basis of their meaning of production. Farmers keep records neither of production figures nor of the amount of padi sold or otherwise leaving the farm.

The household returns gave a total of 189,000 gantangs as the daerah production for the season 1954/5. Of this 117,193 gantangs was the total reported by households in Tanjong Jering where only wet padi is grown. The Tanjong Jering wet yield was 155.3 gantangs per acre. The official estimate for the same mukim was 297 gantangs per acre and the Pënggawa stated averages of 400 gantangs had been known in years when the Sungei Këmasin did not overflow 'excessively'. The official estimates are based on test cuttings from sample rectangles within the daerah.

The householders' estimates of 189,000 gantangs as their total production (wet and dry) for 1954-5 may be compared with the official estimate of 26,900 gantangs of dry and 321,700 gantangs of wet padi, a total of 348,600 gantangs. Because padi is stored in the ear, storage capacity here offers only a slight cross-check on production. Some padi is stored in a special isolated hut (known here as a *balai padi*), the rest in a small room opening off the inner living-room of a house. The total capacity of the 165 *balai padi* was about 184,000 gantangs and of the store-rooms about 124,000 gantangs, giving a total daerah capacity of over 300,000 gantangs, which is about one-and-a-half times the production of 1954-5 according to household statements but only five-sixths of the official estimate of production.

How much padi moves in and out of this daerah each year it was impossible to estimate accurately. During the traffic count taken by the team at key points on 16th August, 1955, the equivalent of about 500 gantangs of padi were in movement out of the daerah at a time about halfway between two harvests. Through 1954 it was estimated by local shopkeepers (there is one registered rice-dealer in the daerah) that about 221 pikuls of rice came into the mukim for sale, mostly in the two months (November and December) immediately before the harvest of dry padi, a time when locally produced supplies were very low. The 1954 internal movement of padi (apart from the domestic one from field to house) was estimated from the household returns to have been about 2,300 gantangs sold from farmers to others in the daerah, 15,000 gantangs 'paid' out in return for work or as rent of fields, and 3,000 gantangs given to the mosques.

FERTILIZERS

For dry-padi cultivation manuring is essential. The fertilizers most commonly used are ash from kitchens, kilns and copra-dryers, burnt padi-husks or burnt cow-dung, all mixed with earth in whatever proportions the farmers can manage. The general practice is to use this mixture only once each year, at dibbling, but some farmers apply it once at seeding and again after a month or two's growth. Apart from the dung of cattle grazing the fields in the off-season, wet padi-land receives little or no manure.

In the 1952/3 season the Department of Agriculture introduced the fertilizer *Chap Kepala Ayam No. 1*, compounded as follows:

sulphate of ammonia	-	-	-	-	58 lb.
double super-phosphate	-	-	-	-	13
Christmas Island rock-phosphate	-	-	-	-	19
muriate of potash	-	-	-	-	10
					<hr/>
					100
					<hr/>

Farmers obtain this through the Pënggawa from Imperial Chemical Industries in Kota Bharu. The recommended scale of application to both wet and dry padi is 200 lb. per acre, 100 lb. immediately before transplanting and 100 lb. after six to eight months' growth. It was originally intended that a Government subsidy of half the total cost should cease after two years, but in 1954/5 demand fell so low (only 18 families using the fertilizer) that in 1955/6 the subsidy has been restored at \$8 out of \$15 for 100 lb. Transport costs are to be borne by Government and Imperial Chemical Industries.

PESTS

Despite the fact that 18% of the farmers listed pests among their difficulties, preventive measures are seldom practised. The commonest pests are stem-borers (*ulat batang*) and padi-flies (*kising*). The former are moth-larvae which eat into the padi stems, being most destructive when the crop is from two to four months old, particularly if there is a shortage of water. Unless there is a severe outbreak various methods of control devised by the Agricultural Department are largely ignored by the farmers. Padi-flies, which feed on the ripening grain, are most prevalent in isolated plots, especially when flowering is either too early or too late. In 1954 the State Agricultural Station at Kota Bharu acquired three "fog-

machines" for use in severe outbreaks of *kising*, but so far these have not been employed in Daerah Tanjong Pauh.

Rats, nesting in bunds and undergrowth such as the nipah bordering the S. Kemasin, are most active when the padi is from four to six months old. Farmers prefer the simple rat-trap to the zinc phosphite provided by the Agricultural Department which, in addition to destroying rats, is always a potential danger to fowls and cattle. The *sělok* or mole cricket (a *Gryllotalpid*) is primarily a pest of dry padi but also attacks wet padi whenever the *běndang* dry out. Birds are most active as pests during sowing and harvesting but only occasionally do the farmers or their families make desultory efforts to scare them away.

CHAPTER IV

OTHER AGRICULTURAL ACTIVITIES

CROPS OTHER THAN PADI

Although the dominant feature in the agricultural landscape is padi, other crops are not insignificant, coconuts, rubber, vegetables, tapioca, tobacco and fruit together occupying 26% of the total area or 34% of the cropland of the daerah.

TABLE 6: LAND USE IN DAERAH TANJONG PAUH

LAND USE	MUKIM TG. PAUH		MUKIM TG. JERING		MUKIM PAK PURA		DAERAH TANJONG PAUH	
	ACREAGE	%	ACREAGE	%	ACREAGE	%	ACREAGE	%
1. WET PADI	193	22	761	84	680	38	1,634	45
2. DRY PADI	130	15	—	—	107	6	236	7
3. COCONUTS	224	26	23	3	391	22	639	8
4. RUBBER	7	1	13	1	65	3	84	2
5. VEGETABLES	19	2	14	2	11	1	44	1
6. ORCHARD	—	—	41	5	31	2	72	2
7. TAPIOCA	39	4	6	1	37	2	81	2
8. TOBACCO	—	—	1	—	1	—	2	—
9. NIPAH	20	2	34	4	34	2	88	2
10. SCRUB	215	25	—	—	259	14	473	13
11. UNCULTIVATED	25	3	16	2	189	10	230	6
12. GRAVEYARDS	3	—	—	—	10	1	13	—
TOTAL	873	100	909	100	1,815	100	3,597	100

Coconuts occupy 639 acres, (23% of the cultivated land of Daerah Tanjong Pauh) dominating the land use on the gong where the water-table is too low for wet padi (Fig. 13A). They are thus more numerous in the two eastern mukims of Pak Pura (391 acres, 30% of cultivated land) and Tanjong Pauh (224 acres, 37%

TABLE 7: CROP-LAND AS PERCENTAGE OF CULTIVATED AREA IN DAERAH TANJONG PAUH

CROPS	TG. PAUH	TG. JERING	PAK PURA	DAERAH TANJONG PAUH
WET PADI	32	89	51	57
DRY PADI	21	—	8	10
COCONUTS	37	3	30	23
RUBBER	1	2	5	3
VEGETABLES	3	2	1	2
ORCHARD	—	5	2	2
TAPIOCA	6	1	3	3
TOBACCO	—	—	—	—
TOTAL	100	100	100	100

of cultivated land) where they form a pattern complementary to that of the padi crops (Cp. Figs. 11A and B). In Mukim Tanjong Jering coconuts are restricted to the levees bordering the S. Kemasin and to the isolated curving gong, so that they occupy less than 3% of the cultivated land of that mukim.

Apart from a Chinese plantation of 10 acres in Mukim Pak Pura (Fig. 17), coconuts are wholly a small-holding and kampong crop, but they do provide the raw material for two industries of considerable local importance: the nuts are

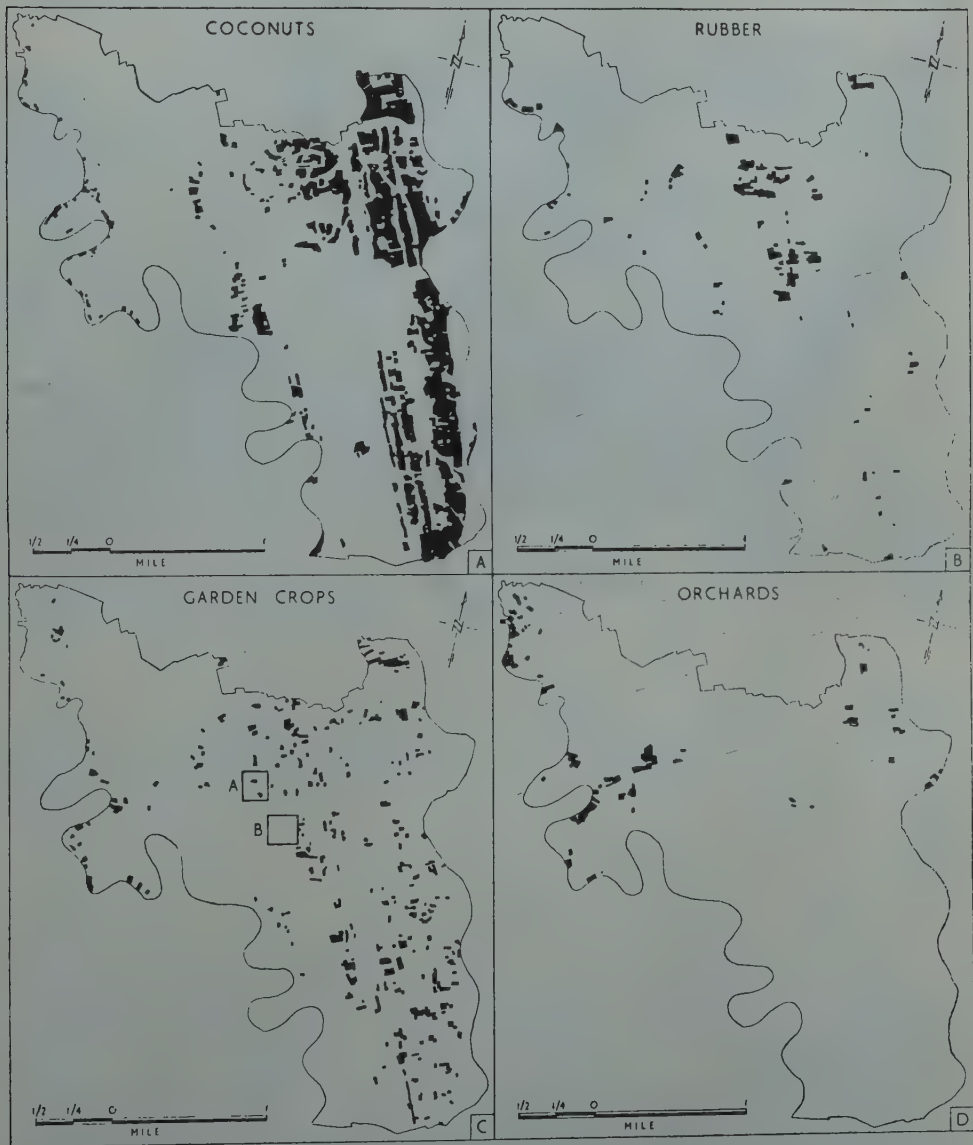


Fig. 13. Daerah Tanjong Pauh: land use (excluding sawah). A. Coconuts. B. Rubber. C. Garden crops (mainly vegetables and tapioca with a little pineapple and tobacco). The squares denote the location of the specimen areas depicted in Fig. 14. D. Orchards.

sold to copra-dryers at \$6-7 per 100, while *tuak* or toddy is used by sugar-boilers (pp. 30-1 below). Trees which are tapped for *tuak* bear no nuts.

Rubber. There are 84 acres of rubber in the Daerah (2.5% of cultivated land), consisting wholly of small-holdings, few of which exceed three acres, and occupying land too dry for padi (Fig. 13B). Two-thirds of the acreage is in Mukim Pak Pura (5% of cultivated land), mainly on the *bĕris*, but the sterile sands support only stunted trees, which after some quarter of a century have the appearance of normal five-year olds. Tapping is closely related to the cycle of padi activities and inevitably to the monsoons. During planting and harvesting,

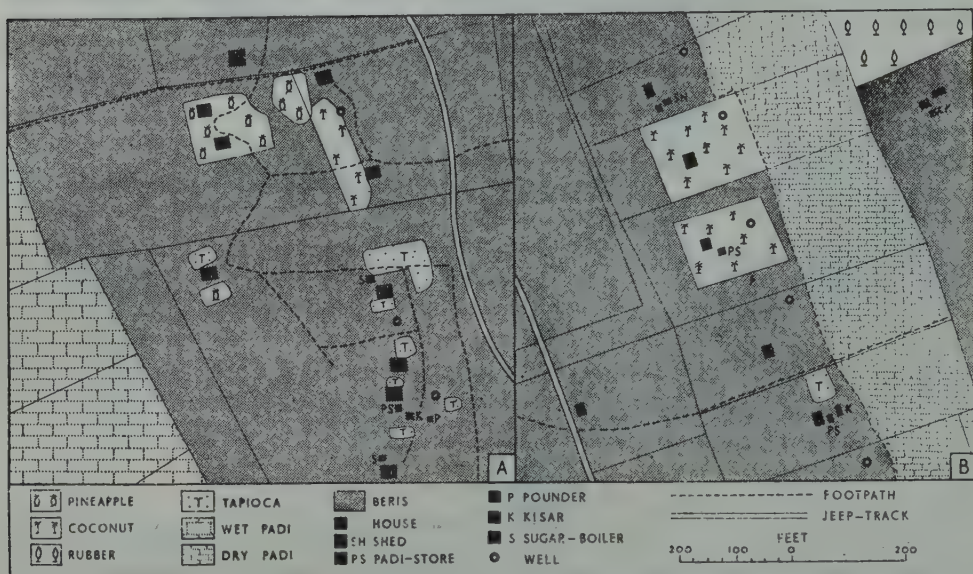


Fig. 14. Land use on the *bĕris* of Mukim Pak Pura. For the position of these samples see Fig. 13C.

the periods of peak labour demands, tapping virtually ceases, as it does again during the wettest months of November and December. Total monthly production from the Daerah is estimated to be less than 10 pikuls so it is not surprising there is no rubber factory or smoke-house; but there are five rubber collectors acting as middlemen between local producers and Kota Bharu dealers. The collectors provide no special storage and the monthly profit of none exceeds \$10.

Garden Crops: (i) *Vegetables* are essentially catch-crops after the padi harvest so that their acreage varies from season to season. From a maximum in April and May when the padi lands are fallow, the acreage declines to a minimum at harvest in January and February. At the time of the survey in July, 1955, fifty-three acres were under vegetables. The commoner varieties include *ubi sĕtilor*, long beans, *kĕtĕnir*, *kĕladi*, *tĕrong ungu* and chillies, all for local use. The sites chosen for the gardens are the alors and padangs, which remain damp throughout the year but excessive moisture is avoided by growing the vegetables in raised beds or *batas*. For convenience the plots are situated as near to the houses as possible and consequently the map of vegetable distribution parallels that of settlement. Little manuring is done and the plots depend solely on rainfall.

In addition, where the water-table permits small plots adjacent to houses on the gong are used for vegetables throughout the year. No beds are necessary in such localities.

(ii) *Tapioca* is a crop of marginal land too dry or too infertile for padi. Thus it is found in beds of variable size on the edges of the gong and beris, where it frequently borders plots of dry padi. Manuring is negligible, and where the soil is extremely poor the land is left fallow in alternate years. In July 1953 there were some 80 acres of the Daerah under tapioca. It is grown both for home consumption and to provide a cash income. A hundred plants sell for about \$10.

(iii) *Tobacco* occupied just over two acres in July 1955, all on kampong land. It was entirely for home use.

Orchards occupied 72 acres (2% of the cultivated land) at the time of the survey, all in the northern half of the Daerah, in Mukims Pak Pura and Tanjong Jering (41 acres). The complete absence of such features in Tanjong Pauh cannot be

TABLE 8: LIVESTOCK IN DAERAH TANJONG PAUH

CLASS OF LIVE STOCK	TG. PAUH	TG. JERING	PAK PURA	TOTAL
BUFFALO	59	88	182	329
CATTLE	220	106	348	674
FOWLS	1,056	881	2,694	4,631
DUCKS	209	226	599	1,034
GOATS	124	55	170	349
SHEEP	5	13	30	48

explained, but it may be significant that this mukim is the one with the largest proportion of agricultural land under coconuts. Most of the orchards include a variety of trees, of which the commoner are *durian*, *rambutan*, *mangosteen*, *kundang*, *pauh*, *janggus*, *machang* and *rambai*.

TABLE 9: BUFFALO AND OTHER CATTLE IN DAERAH TANJONG PAUH, 1954-5

1954	BIRTHS		IMPORTS		SLAUGHTERS		DEATHS		EXPORTS	
	CATTLE	BUFFALO	CATTLE	BUFFALO	CATTLE	BUFFALO	CATTLE	BUFFALO	CATTLE	BUFFALO
JAN.	—	—	1	—	1	4	—	—	5	2
FEB.	—	—	1	—	1	1	—	1	4	7
MAR.	—	—	—	—	—	—	—	—	—	—
APR.	1	—	2	2	3	2	—	—	1	6
MAY	1	2	1	7	2	—	—	—	2	2
JUN.	—	1	1	2	1	6	—	—	6	2
JUL.	1	—	—	5	2	2	—	1	3	—
AUG.	—	—	—	4	18	2	—	1	2	1
SEP.	—	—	—	—	—	—	—	—	—	4
OCT.	—	—	—	2	2	2	—	—	—	1
NOV.	6	4	—	2	4	—	—	—	3	7
DEC.	—	—	2	—	1	—	—	—	6	2
TOTAL	9	7	8	24	35	19	—	3	32	34

The 470 acres described as 'scrub' (Table 6) are the *uncultivable* leached sands of the bĕris, and should not be confused with the 229 *uncultivated* acres which carried no crops at the time of the survey. Most of these latter were plots which had been abandoned when their owners left the Daerah.

Livestock

Nearly every household owns some livestock or poultry (Fig. 15). Buffalo and cattle form an integral part of the farming economy of the Daerah, for not

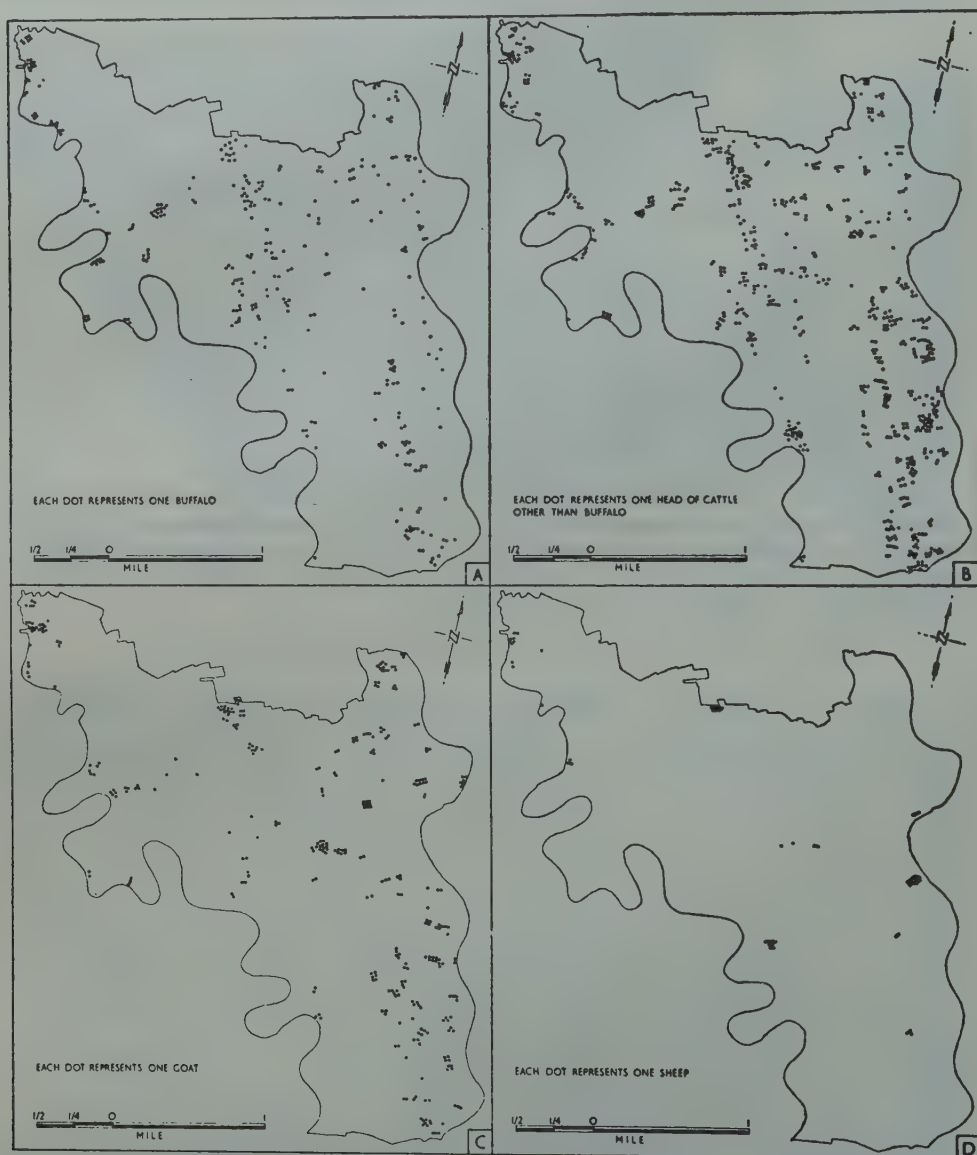


Fig. 15. Daerah Tanjong Pauh: distribution of livestock. A Buffalo. B. Cattle other than buffalo. C. Goats. D. Sheep.

only are they used for ploughing and harrowing but while they graze the padi-fields they are a source of manure. Buffalo are generally preferred in the *lĕmbah* or muddy conditions of the barohs but oxen on the loose soils of the *tugal* (dry padi-fields). In both environments the farmers estimate that one buffalo can do the work of two oxen, which partly accounts for cattle being more than twice as numerous as buffalo in the Daerah. There is, too, a consideration of cost. The price of a buffalo (\$230-250) is beyond the means of many families who can yet manage to purchase an ox (\$150-200). It is believed locally that the number of cattle in the Daerah is decreasing, a trend borne out by Table 9, computed from the Pĕnggawa's records, which shows a loss of 75 head during 1954.

As the Daerah possesses only one lot of reserved grazing land (in Mukim Tanjong Jĕring) and that of poor quality, feed for stock is a perennial problem. During the off-season the animals graze the stubble of the padi-fields, but from planting to harvest they are restricted to the meagre forage around the kampong, supplemented with poor-quality hay and chopped banana-stems. There are no special shelters for the animals which are usually penned in small enclosures adjacent to, or under, the houses. At times of high flood they are sent to the bĕris.

Those farmers who own neither ox nor buffalo usually borrow or hire one for a period of from one to two months, during which the animal is in their sole care. The hire of a buffalo varies from \$40-50 or 80-100 gantangs of padi for the season, depending on the size and strength of the beast; that of an ox from \$30-40 or 50-80 gantangs of padi. Payment is made when the animal is returned. Farmers usually obtain lower rates from relatives, and payment may even be in the form of gifts. A few lot-holders employ a hired man to plough their fields at the rate of \$60 an acre, including the use of the draught animal.

TABLE 10: LOANS OF LIVESTOCK IN DAERAH TANJONG PAUH DURING THE SEASON 1954-5

LIVESTOCK	TG. PAUH	TG. JERING	PAK PURA	TOTAL
BUFFALOES:				
BORROWED	3	6	25	34
LOANED	2	2	20	24
HIRED	4	25	55	84
TOTAL	9	33	100	142
CATTLE:				
BORROWED	21	6	15	42
LOANED	6	3	15	24
HIRED	1	11	4	17
TOTAL	28	20	34	83

There are 349 goats in the Daerah (Fig. 15C), kept for meat only as their milk is never drunk. There are, too, 48 sheep (Fig. 15D), reared only for purposes of prestige, although farmers maintain that they are less susceptible than goats to disease. They are in fact remarkable for their ability to survive in spite of the neglect to which they are exposed. Ducks and fowls are raised in considerable numbers and sold to local men who implement their income by acting as part-time dealers. The price of a fowl is \$1.50-2.00 in the Daerah and it is sold in the markets of Kota Bharu and Jĕlawat for a profit of 40-50 cents a head.

Another feature of interest is the number of monkeys trained to gather coconuts. Of the total of 26, 22 are in Mukim Pak Pura, that is, in the main coconut area. A trained monkey is usually worth \$100-200, and even an untrained one fetches some \$50.

LOCAL INDUSTRIES

Low yields and the small acreages of individual padi-lots often make it desirable for households to supplement the returns from subsistence farming with

TABLE 11: NUMBER OF HOUSEHOLDS WITH AND WITHOUT PADI-LAND

NATURE OF WORK	MUKIM TANJONG PAUH		MUKIM PAK PURA		MUKIM TANJONG JERING		TOTAL	
	PADI-PLANTING HOUSEHOLDS	HOUSEHOLDS WITH NO PADI-LAND	PADI-PLANTING HOUSEHOLDS	HOUSEHOLDS WITH NO PADI-LAND	PADI-PLANTING HOUSEHOLDS	HOUSEHOLDS WITH NO PADI-LAND	PADI-PLANTING HOUSEHOLDS	HOUSEHOLDS WITH NO PADI-LAND
TILE-MANUFACTURE	43	16	58	9	1	—	102	25
ATAP-MAKING	21	6	5	1	2	—	28	7
COPRA-DRYING	14	—	31	—	3	—	48	—
SUGAR-BOILING	13	—	30	—	1	—	44	—
SHOP-KEEPING	1	1	10	9	1	—	12	10
FISHING	1	1	1	2	2	—	4	3
HOUSE-BUILDING	6	3	28	4	6	1	40	8
VEGETABLE-GARDENING	16	2	41	9	18	1	75	12
RUBBER-TAPPING	1	—	23	1	12	1	36	2
SAWING	—	—	8	2	5	1	13	3
POULTRY-DEALING	—	—	5	1	1	—	6	1
FISH-SELLING	—	—	2	1	5	1	7	2
VILLAGE CARPENTRY	—	—	4	—	5	1	9	1
MIDWIFERY	—	1	1	—	—	1	1	2
TAILORING	—	—	—	3	1	—	1	3
TRISHA-RIDING	—	—	3	1	2	1	5	2
RUBBER-DEALING	—	—	—	—	1	—	1	—
INAM	—	—	—	—	1	—	1	—
OX-CART DRIVING	—	—	1	1	—	—	1	1
TEACHING	—	1	—	8	—	1	—	10
BARBER	—	—	—	3	—	1	—	4
FERRYING	—	1	—	—	—	—	—	1
BLACKSMITHING	—	—	—	1	—	—	—	1
LORRY CONDUCTING	—	—	—	1	—	—	—	1
DHABI	—	—	—	1	—	—	—	1
PETITION WRITING	—	—	—	1	—	—	—	1
GOLDSMITHING	—	—	—	2	—	—	—	2
TAXI-DRIVING	—	—	—	1	—	—	—	1
PENGGAWA'S CLERK	—	—	—	1	—	—	—	1
PENGGAWA	—	—	—	1	—	—	—	1
ODD-JOBING *	21	2	33	14	32	5	86	21
TOTAL	137	34	284	78	99	15	520	127

* Odd-jobbing includes coconut-climbing, carrying goods and padi-harvesting.

cash incomes. This need is partly met by industries using local raw materials and drawing on local labour which, in the absence of double padi cropping, is available for other activities during the three months of the off-season. Such industries include the making of tiles and atap, and the preparation of copra and sugar, of which only tile manufacture has any significance outside the Daerah. The total number of households involved in these four activities is 254.

The total output per month from the four main industries is as follows:—

Tiles	- - - -	1,161,000
Pieces of atap	- - - -	85,000
Cakes of sugar	- - - -	14,200
Piculs of copra	- - - -	120

Tile Manufacture

The 33 kilns in the Daerah are without exception situated on the barohs, the source of the plastic clay from which the tiles are made (Fig. 16). All but two are on the banks of the S. Kēmasin in the east of the Daerah where the river itself serves as a link between the kilns and the jeep tracks in Daerah Pērupok. Lack of such tracks in Daerah Bēklam has prevented a similar development on the more extensive western barohs which contain only two kilns, one on the main track from Bēris Kubor Bēsar to Kota Bharu, the other on the bank of the S. Bēklam.

Production is restricted to the off-season months of April and June, not simply because this is the only period when farmers bound to the padi cycle are free to engage in part-time work but also because the digging from the flooded baroh and the subsequent drying of the clay during the wet season would be an impossibility. The processes of manu-

facture include excavation of the clay from the fields with a spade after which it is carried to the tilery and thoroughly kneaded to induce the required elasticity before being pressed into the mould. The square ends of the resulting tiles are bent slightly to form a hook, and then stacked in batches of 50,000 to await baking, an operation undertaken every twelve to fifteen days. Three grades of tile are produced. The low grade, at less than \$100 per 10,000, are disposed of within the Daerah; the highest quality sell locally at \$120 per 10,000 and at \$150 in Kota Bharu. Total annual production is estimated to be 4½ million tiles, that is, an average of 90-150,000 per kiln. The proprietors keep no records of the number sold locally, but no less than 55% of the houses in the Daerah have tiled roofs. Outside the Daerah tiles from Tanjong Pauh are sold as far afield as Pasir

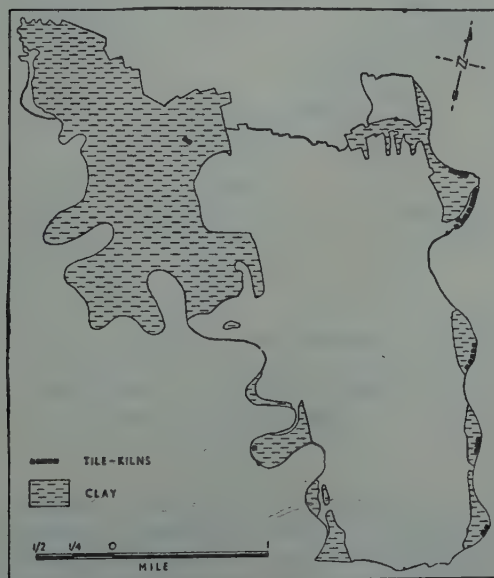


Fig. 16. Daerah Tanjong Pauh: distribution of tile-kilns.

Puteh, Pasir Mas, Kēmasin and Kuala Krai. The tiles are distributed within the Daerah by bullock-cart. Further afield lorries are sometimes used, but more particularly the tiles are ferried over the Kēmasin River to Daerah Pērupok.

Lorries are also used to bring firewood (mostly rubber) for the kilns, at the rate of two or three loads, each costing some \$50, for each baking.

Twenty-nine of the kilns belong to the men who manage them, the rest to absentee owners. Many of the kilns are on land not owned by the proprietors who then pay rent reckoned by the quantity of clay excavated, that is, \$5 for a stack of about 200 cu. ft. A tax of \$5 per worker levied on kiln proprietors imposes a premium on secrecy with regard to numbers employed, but the team estimated that 153 workers (81 men and 72 women) were engaged part-time in the industry. Payment is at piece-rates (usually \$50 for 10,000 tiles), known locally as the *atas kuda* system. There are no fixed hours of work, which goes on continuously throughout the hours of daylight. The employees work in couples, the men mainly digging and carrying and the women moulding. Most couples receive from \$60-100 per month for 20,000 tiles.

Copra-drying

There are 48 copra-drying sheds in the Daerah, all but three of which are in the coconut-growing mukims of Pak Pura and Tanjong Pauh. The drying-shed, an atap roof housing a simple nibong platform over a fire of coconut husks, is usually sited close to the house. Most driers use coconuts from their own holdings, but a few supplement their crops with nuts bought at the rate of \$6-7 per 100. Nuts are usually plucked by trained monkeys and transported to the drying sheds on bicycles or shoulder-poles. At regular intervals when sufficient have accumulated, they are husked and split and then dried for a period of nine or ten days. Sun-drying is also practised whenever the weather permits. Two hundred nuts yield a pikul of copra.

The copra is sold either to itinerant middlemen at the drier's house, or at the middlemen's shop for \$18-20 per pikul. It then undergoes drying for another day with a further loss of weight of some six to eight per cent and is sold at \$22.50 per pikul to two Chinese dealers in Kota Bharu who collect it in lorries.

Sugar-boiling

Fifty-four boilers, most of which are in mukim Pak Pura and Tanjong Pauh, supply all the sugar consumed in the Daerah (Fig. 17). Boilers are always sited conveniently close to the houses. In July 1955 nine had been abandoned or were temporarily inactive. While little affected by the rhythm of the padi seasons, boiling is closely integrated with the daily routine of padi-cultivation, and takes place only after work in the fields is finished. Flower-sap or *tuak* is collected morning and evening in bamboo containers in which pieces of *chēngal* wood have been placed to prevent the juice turning sour. After two hours' boiling in a large pan the liquid is poured into mugs of *mēngkuang* leaves for hardening.

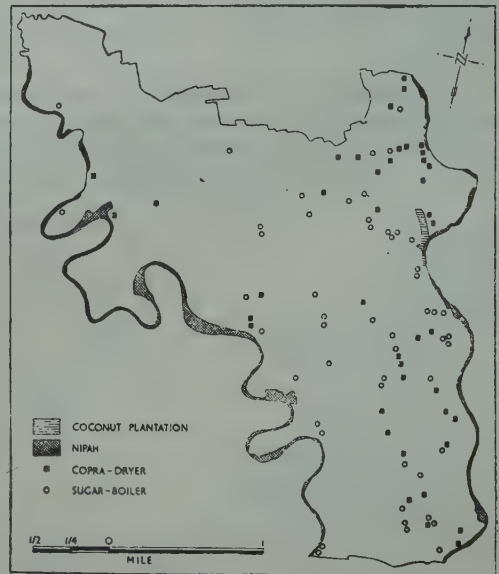


Fig. 17. Daerah Tanjong Pauh. (i) Distribution of sugar-boilers. (ii) Distribution of copra-driers.

Monthly production for the whole Daerah is estimated at 14,200 cakes, a dozen of which are sold locally for \$1. Half the boiler-proprietors in Mukim Pak Pura stated that they hired trees each at a rent ranging from 30 cents to \$1 per month. An average tree yields 40-50 cakes per month, that is, from 8 to 10 katis of sugar.

Atap-making

This is a cottage industry practised by 38 households for personal or local needs. Atap is still almost as popular as tiles as a roofing material in the Daerah. It is made by sewing nipah leaves over beams of nibong with strips of bẽmban skin. The nipah leaves are mostly bought from farmers whose lots border the S. Kẽmasin, a *bẽrkas* (bundle) costing 20 cents and providing material for 40-50 pieces of atap, which is sold within the Daerah at \$3 per 100. As a part-time occupation, 60-100 pieces can be completed per day, and the total monthly production of the Daerah is estimated to be about 85,000 pieces. With the exception of two sheds specifically for storage, all ataps are kept under the houses.

Miscellaneous

Basket- and mat-making are undertaken by most households, and particularly by the womenfolk. A few also make fishing-nets. Along the edges of the gong the pock-marks of abandoned fish-ponds bear witness to unsuccessful attempts since 1951 to rear *tilapia*.

CHAPTER V

LAND AND LANDOWNERS

The investigators found major difficulty in obtaining ownership data for several reasons. In the first place the people, though outwardly friendly were covertly suspicious and in many cases would not produce all their quit-rent receipts for inspection. Second, in the mukim *Register of Holdings* only the names of owners are recorded so that there is no official method of locating their places of residence. Moreover, it was found that in many entries no attempt had been made to transfer the registration from the names of deceased owners to that of present owners. Finally, it takes some time to transmit a title so that, even where an owner wished to register newly purchased land, the Mukim Register often still recorded the name of his predecessor. An attempt was made to overcome this difficulty by consulting four of the five pēnghulus (headmen) in the Daerah together with other influential residents, notably the Dato' Imam of Tanjong Jering. Despite these efforts it was found impossible to obtain all the desired ownership data. This issue might be considered of sufficient importance to justify the future inclusion of owners' addresses in the Mukim Register. The land-owners in any case need to be impressed with the necessity of keeping the Mukim Register up to date.

Examination of the Mukim Register showed that, of the 5,048 lots, including 163 that had reverted to the State as the result of failure to pay rent, 26% had changed owners since 1945. Forty-three per cent recorded no change of ownership since 1928.¹ The apparent continuity of ownership must raise considerable doubts about the accuracy of entries in the Land Register. The recorded dates of the last changes of ownership of the lots in the Daerah are given below:—

TABLE 12: DAERAH TANJONG PAUH: CONTINUITY OF TENURE

DATE OF LAST CHANGE	NUMBER OF LOTS
FROM 1927 — DEC. 1928	2,174
JAN. 1929 — DEC. 1930	175
JAN. 1931 — DEC. 1932	127
JAN. 1933 — DEC. 1934	214
JAN. 1935 — DEC. 1936	256
JAN. 1937 — DEC. 1938	249
JAN. 1939 — DEC. 1940	212
JAN. 1941 — DEC. 1942	122
JAN. 1943 — DEC. 1944	54
JAN. 1945 — DEC. 1946	45
JAN. 1947 — DEC. 1948	139
JAN. 1949 — DEC. 1950	249
JAN. 1951 — DEC. 1952	339
JAN. 1953 — DEC. 1954	439
JAN. 1955 — DEC. 1955	246

1. This year is adopted as a *terminus a quo* because the first entry of a good proportion of the lots dates from 1928. Nearly half of the 43% had not changed hands since 1927.

Difference in relief is reflected in difference in land use, which is in turn manifested in the size and shape of the lots. In the barohs of Mukim Tanjong Pauh the padi lots are small and elongated from east to west from one side of the *baroh* to the other (Fig. 2). The barohs of Mukim Pak Pura are more extensive, but the east-west tendency can still be traced with excessively long lots subdivided into two or more. In Mukim Tanjong Jering, where the barohs are at their maximum width, no one trend is dominant. The padi-lots here are larger and over 200 exceed one acre in size. Kampong lots on the slightly higher ground of the gong run transversely so that their length is limited by the surrounding padi-land. Lots on the levees of the S. Kemasin are also limited in this way.

In the alors and on the gongs of Mukim Pak Pura the lots are more irregular in shape and size. Padi-lots tend to stretch from one side of an alor to the other but not infrequently, while a portion of a lot may be found on the gong under *dusun* (orchard), the other portion extends into the alor which is



Fig. 18. Lot boundaries in relation to land use. A. Lots more or less coincident with land use. Detail of an area half a mile north-west of Pèngkalan Haji Ali in Mukim Pak Pura. B. Lots including diverse types of country and therefore of land use. Detail of an area a quarter of a mile south-east of Pak Pura School. C. Lots running inland from the bank of the Pèngkalan Stor.

under padi (Fig. 18A). On the bĕris lots are generally larger than in other areas and run transverse to the grain of the country (Fig. 14).

Except for those in Mukim Tanjong Jĕring and those to the west of Bĕris Kubor Besar in Pak Pura, the padi-fields are much divided. The 1,634 acres of sawah are divided into 2,709 lots, giving the average size of each padi lot as 604 square dĕpas. Many padi-lots are clearly smaller than this. Fragmentation is seen in Mukims Tanjong Pauh and Pak Pura, where long narrow strips running from one side of the baroh to the other have been subdivided into two or more lots. Around Kampong Tanjong Pauh in the south-west of Mukim Pak Pura, for example, 542 padi-lots occupy only 202 acres, giving an average size for each lot of only 372 dĕpas. The dry padi-lands are even more fragmented and the average size of the 479 dry-padi lots is 466 dĕpas. We may attribute this fragmentation to the customary division of the property among the heirs of a deceased according to Islamic law. A son receives twice as much as a daughter and consequently padi-lots are frequently divided in the ratio of two to one. Government has realized the implication of this custom and from 1st January, 1939 prohibited the subdivision of any lot of less than one-quarter of an acre.¹ In such cases one of the co-owners is required to buy out the others.

In the absence of titles containing addresses of owners, the investigators had to obtain the whereabouts of landowners from the local inhabitants. Of the 2,548 wet-padi lots which the team were able to trace, 355 are the property of people living outside the Daerah (Fig. 19C). All but 10 of these lots are owned by people living in the neighbouring daerahs, the rest by persons living in Kota Bahru, Ulu Kĕlantan and Thailand. Thus absentee land-lords are unimportant in the wet-padi economy of the Daerah. Only 17 dry-padi lots are owned by people outside the Daerah. All padi-lots, both wet and dry, are worked by Malays. In fact, in the whole Daerah the team found only one lot, a coconut plantation in Mukim Pak Pura, that was owned by a Chinese in Bachok. This is mainly the result of the State ruling that non-Malays may not own padi-land and that a qualification for holding any land is a residence of twenty-five years in the State.

A total of 2,273 padi-lots are worked directly by their owners. This includes 154 lots which are the property of wives and also 355 lots owned by people living in neighbouring daerahs. Thus the 602 padi-planting households own and work an average of $1\frac{1}{4}$ acres each. This excludes 207 lots that are borrowed from relatives staying generally in the same household² (10 of these relatives live outside

1. An extract from Section 37A of the Kĕlantan Land Enactment of 1938 reads:

"37A.—(1) From and after the coming into force of this Enactment, except in the case of land situated within the limits of a town or village constituted under this Enactment or any previous land law—

(a) no land which exceeds 250 square dĕpa in area shall by survey be subdivided in such a manner that any of the resulting subdivisional lots shall be less than 250 square dĕpa in area, and
(b) no land which is 250 square dĕpa or less in area shall be subdivided; and
(c) no transaction shall be registered in respect of any land which would have the effect of creating undivided shares of such size that, if the land were to be subdivided by survey according to the size of such shares, the area of any resulting subdivisional lot would be less than 250 square dĕpa."

The prescribed minimum size of 250 square dĕpa is far too small, but the Enactment is important as having established a precedent in Malaya for the restriction of subdivision of land.

2. For these lots the workers pay the usual rent to the Government. They do not pay anything to the owners.

the daerah and for 20 of the borrowed lots no relation between the owner and the worker could be traced).

Of the 68 padi-lots that are rented, 8 belong to the State, 37 to owners in neighbouring daerahs and 23 to owners staying within Daerah Tanjong Pauh. The Government's lots are rented at \$1 each irrespective of size. Apart from this only six other lots are rented in cash, five of which belong to owners outside the Daerah. It follows that 54 of the padi-lots are rented in kind and 32 of them belong to people staying outside this Daerah. The rent in cash varies with the

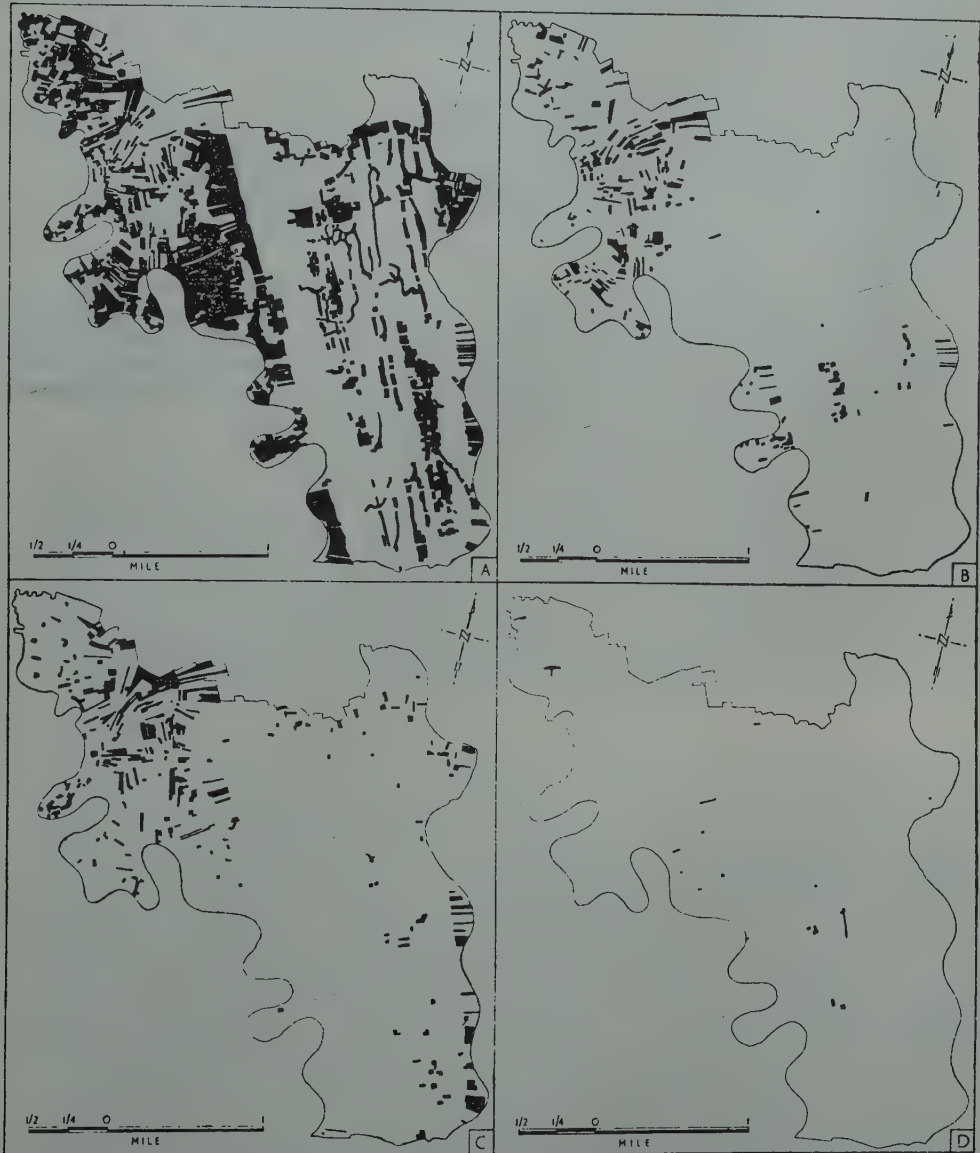


Fig. 19. Daerah Tanjong Pauh: ownership of padi lots. A. Owner living in the mukim in which his lots are situated. B. Owner living in Daerah Tanjong Pauh but outside the mukim in which his lots are situated. C. Owner living outside Daerah Tanjong Pauh. D. State land.

size of the lot but never exceeds \$50. One farmer rents 5 lots for \$130.¹ Where rent is in kind, payment is half the produce, an arrangement known as the *pawah* system. The farmer does the ploughing, planting and harvesting and passes on half the production to the owner. Occasionally the owner helps in the planting or harvesting. All agreements are made verbally.

An additional 75 lots, 41 of which belong to owners outside the Daerah, are rented by 38 households. Of this 75, all were rented on the *pawah* system except 7 rented in cash. Only five households are solely dependent on rented lots: each rents five lots. The rest of the 118 rented lots are worked by 68 households, most of whom rent only a single lot to supplement the yield of their own fields.

The price of padi-land varies from place to place. Around Kampong Tanjong Jering where the fields are more productive, the price of an acre of padi-land varies from \$1,500 to \$2,000. The fields bordering the *bëris* to the west of Bëris Kubor Bësar have been brought into cultivation only recently. A few years ago when the area was swamp, an acre could be had for a few dollars. Now it is valued at about \$1,200.

Thus all except five households own at least one lot and 68 households work on rented fields in addition to their own. Of the total number of households, only 22 own 10 or more padi-lots each. Of these five own 20 or more lots amounting to more than 10 acres. That the 22 largest owners share about 217 acres, or just over 19% of the padi-lands in the Daerah, shows that no one group monopolizes the padi-land and reflects the even division into small holdings.

1. He was unable to tell the investigators the size and lot-numbers; he knew only that the owner lived outside the Daerah.

CHAPTER VI

COMMUNICATIONS AND SOCIAL ACTIVITIES

COMMUNICATIONS

In the total absence of metalled roads motor vehicles can reach Daerah Tanjong Pauh only by jeep-track from the north-west or by ferry across the Kēmasin in the east (Figs. 1 and 20). Within the Daerah two jeep-tracks of considerable local importance intersect at Bēris Kubor Bēsar. One runs north-south along the bēris and, in addition to being a main internal line of communication, also links the Daerah with its neighbours to the north and south. The other is a continuation east-west across the Daerah of the track from Pērupok and Bachok. Although this enters the Daerah by way of the Pēngkalan Bharu ferry, which can transport cars, there is no corresponding outlet from Tanjong Jēring on the west. A system of footpaths links the settlements within the Daerah to these main arteries, while there is an ever-changing pattern of tracks winding from one house to another and crossing the padi-fields by means of the bunds. Only in the east is the S. Kēmasin used as a highway and there small boats transport tiles from the river-side kilns to Pēngkalan Bharu, Pēngkalan Haji Ali and Pēngkalan China.

Four small, semi-permanent, wooden bridges over the Kēmasin serve the needs of those padi-planters of Tanjong Jēring who have lots in Daerah Bēklam. These bridges are of the simplest construction, plank footways on nipah piles, and have to be partially reconstructed annually after the floods. The eastern reaches of the S. Kēmasin are too broad and deep to be bridged by such casual methods, but instead there are Government-controlled ferries at Pēngkalan Bharu, Pēngkalan Chēngal, Tanjong Hilir, Pēngkalan China and Pēngkalan Haji Ali, the first of which can take carts and automobiles. These ferries, which operate for fourteen hours daily, are farmed out annually. The charges are nominally 5 cents per person and 5 cents per bicycle, but not infrequently a contract payment is made in padi.

There are 3 automobiles, 3 trishas, one ox-cart, one bullock-cart and 217 bicycles in the Daerah. One of the cars is a licensed taxi. The trishas, besides carrying passengers, also transport rubber to Kota Bharu and on their way back carry planks to the Daerah. The ox- and bullock-carts are used only within the Daerah, mostly for the transport of tiles from kilns at Tanjong Jēring to Pēngkalan Bharu and for the collection of copra from the various kampongs. In Mukim Pak Pura bicycles play an important role, being not only ridden but also serving as a means of transporting produce. A high proportion of the total number in the Daerah belong to the inhabitants of Bēris Kubor Besar. There are only a few in the more remote mukims of Tanjong Pauh and Tanjong Jēring, and those belong mainly to the younger folk. Moreover, the wetness of the baroh of Mukim Tanjong Jēring makes cycling difficult. In Tanjong Jēring one out of every three families keeps a boat beneath the house for use in time of flood.

On 13th August, 1955, traffic check-points were established at eight strategic locations within the Daerah. Between 6 a.m. and 6 p.m. only 3 cars and a motor-cycle passed through the check points, but 2,893 people were recorded, of which 1,072 were women.

POINTS OF ASSEMBLY

There are 18 religious buildings in Daerah Tanjong Pauh (Fig. 20). Four of these are *surau* where Friday prayers are held and the rest are *madrasah*. The *surau* at Kêluat serves the whole of Mukim Tanjong Pauh; for Mukim Tanjong Jêring there is a *surau* of the same name, while Mukim Pak Pura has two, strategically spaced to serve the eastern and western sectors. These *surau*s are built by *imam* (priests) aided by small contributions either in cash or in voluntary service from the people. These religious buildings vary in size but, except for the absence of partitions, in general appearance they do not differ greatly from

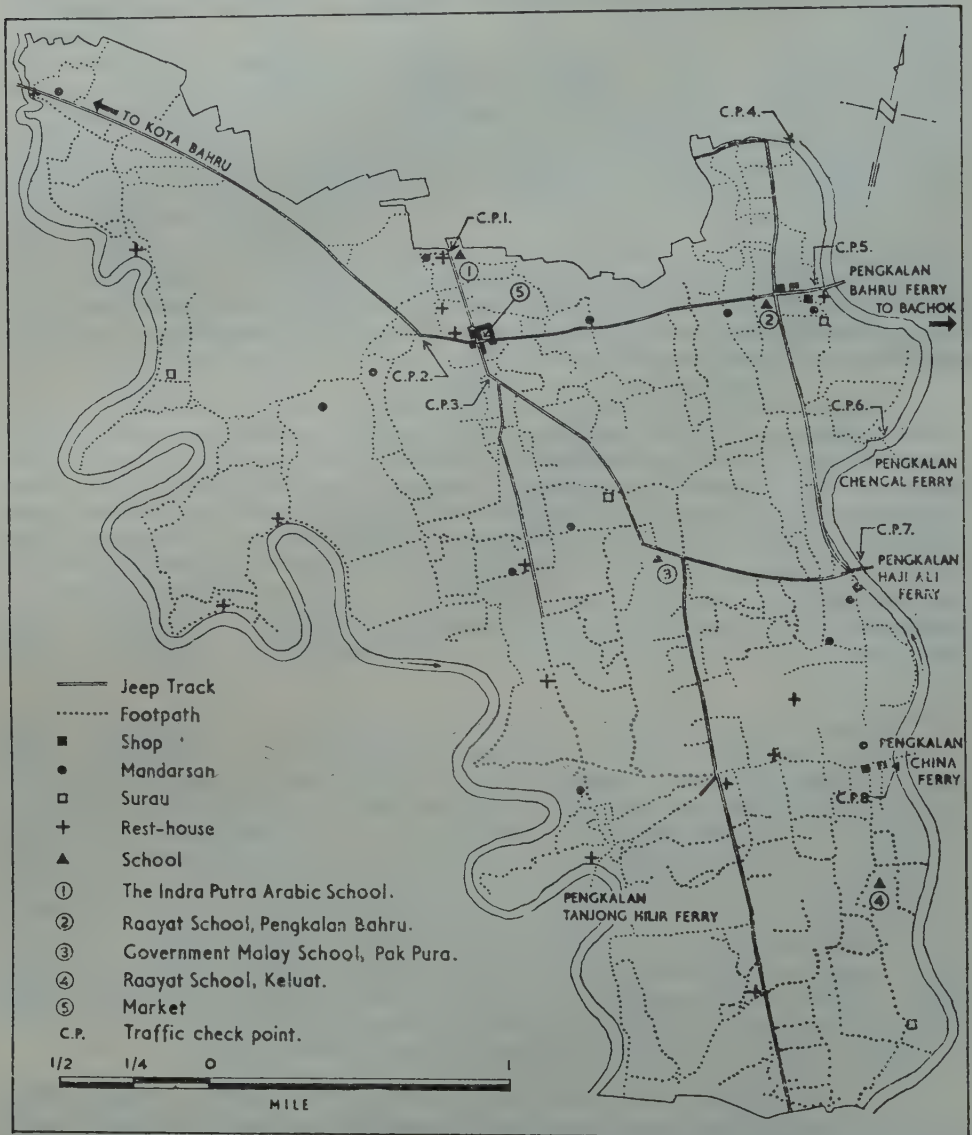


Fig. 20. Daerah Tanjong Pauh: communications and points of assembly. Traffic check-points set up on 13th August, 1955 are marked as, for example, C.P.3.

ordinary houses. They all have tile roofs with wooden planks as their floor. The surau is usually bigger and of stronger construction than the madrasah.

There are four schools: a Government Malay School at Pak Pura, a Government-aided school at Pēngkalan Bahru and another at Kēluat, and the Indra Putra Arabic School which is subsidized by the Majlis Ugama Kēlantan. These schools cater for a total of 694 students, 231 of whom come from outside the Daerah, mainly from Kampong Sungei directly opposite Pēngkalan Bahru. Of the 463 children from within the Daerah, 197 are girls and 266 boys.

The two Government-aided schools are housed in dilapidated buildings which give the students insufficient protection from rain. The teachers are paid by the Government at \$41 per month. The students have no text books and lessons have to be copied from the blackboard or from dictation. They pay no school fees but those at the Government-aided schools (locally known as the ra'ayat schools) subscribe to buy chalk. The Indra Putra Arabic School where Arabic and Muslim doctrines are taught now has an enrolment of 215 boys and girls.

In 1954 a public reading-room was established at Bēris Kubor Bēsar but it has since ceased to function owing to lack of support.

Another feature of the landscape is the 17 rest-houses, called by the people *wakaf*. These are built along jeep-tracks and footpaths where they serve as shelters from sun and rain. These rest-houses, consisting of a roof over a raised platform about ten feet square and costing \$50 to \$100, are built by the community at strategic points along the main tracks and footpaths (Fig. 20).

There are altogether 24 shops and one market in the Daerah. Of these 17 are at Bēris Kubor Bēsar, 4 at Pēngkalan Bahru, 1 at Pēngkalan Haji Ali and 2 at Pēngkalan China. There is no shop in Mukim Tanjong Jēring (Fig. 20). All are owned and managed by Malays with only family help. The whole of Bēris Kubor Bēsar, the most important concentration of shops (Fig. 9), is owned by two men who rent out portions of it at the rate of \$7 per year. The tenants then build their own shop-houses. Those who cannot afford to do this rent shops from the landowners at the rate of \$5 per month. Most needs of the villagers can be met by these shops which open daily except on Fridays. During planting seasons they are managed by the wives of the proprietors. No credit is allowed.

Only three shops sell rice, which is brought from Kota Bharu at a price of \$23 per pikul. It is difficult to assess the amount sold every year because shopkeepers do not make out formal accounts; but from the findings of the team the total amount of rice sold during the three months from December 1954 to January 1955 was 221 pikuls and 40 katis. It is only in the rainy seasons that this flow of rice from the shops to the villages assumes large proportions. One shop owner said he sold 60 katis per day during the months of December and January, that is, during the wet season when the farmers could not mill their own rice because there was insufficient sunshine to dry the padi.

The only market in the Daerah is found at Bēris Kubor Bēsar. Some 40 ft. long by 20 ft. wide and housing seven stalls, it was built after the Japanese occupation by an enterprising pēnggawa with the help of the people, and later was rebuilt by the Government which now farms it out annually for \$200. The right to sell in the market is rented by the head at 10 cents per day, with the result that several women—for only they engage in selling—share each stall. The market is busiest in the early morning when cakes are sold, and in the

evening when fish arrives carried on men's shoulders from Pěrupok, some three miles away.

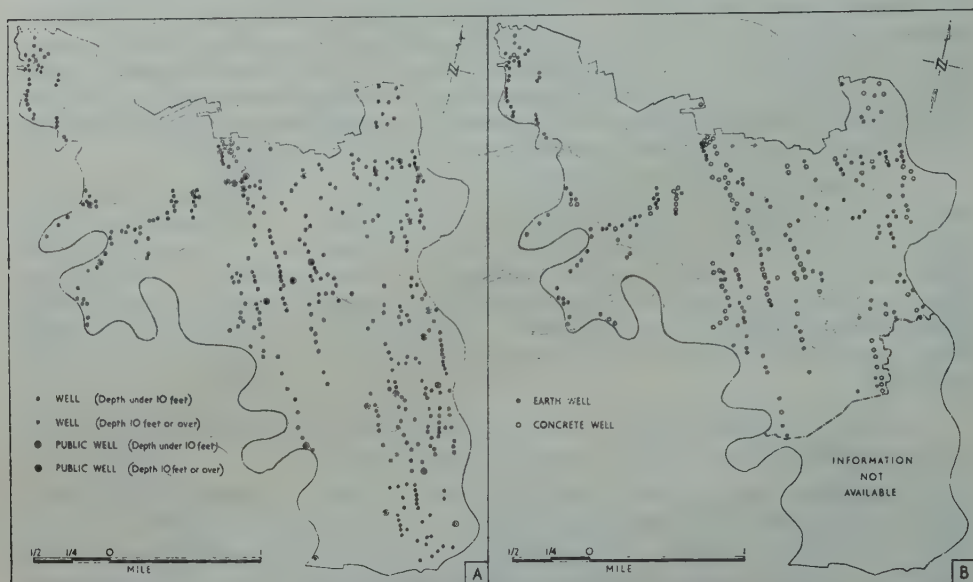


Fig. 21. Daerah Tanjong Pauh: distribution and types of wells. A. Depths of wells. B. Types of wells.

DOMESTIC WATER SUPPLIES

There is no pipe-water in the Daerah and water for domestic purposes is drawn only from wells (Fig. 21). S. Kěmasin, though used by those living close to it for bathing, is never resorted to for drinking, mainly because of its salinity.

TABLE 13: DISTRIBUTION OF WELLS IN DAERAH TANJONG PAUH

MUKIM	NUMBER OF WELLS	NUMBER OF HOUSEHOLDS USING OWN WELLS	NUMBER OF HOUSEHOLDS USING NEIGHBOUR'S WELLS	NUMBER OF HOUSEHOLDS USING PUBLIC WELLS	TOTAL HOUSEHOLDS
TANJONG PAUH	135	132	54	2	188
PAK PURA	295	271	148	94	513
TANJONG JERING	92	87	58	22	167
TOTAL	522	490	260	118	868

On the barohs, as in Kampong Běrhala, Kampong Jěring and Kampong Jěněra, the wells are shallow, whereas on the běris and gong they are usually deeper. Only 7 out of a total of 522 are over 10 ft. deep and these are found on the highest part of the běris in the north of Mukim Pak Pura. The depth of water in all wells varies considerably before and after heavy rain. The colour of well-water depends on the locality: in low-lying areas the water is often murky and brownish, on the gongs and the běris it is clear, but nowhere is it free from surface contamination. The farthest distance between a house and its well is 300 yards but 20 yards is a more usual distance, so that the pattern of distribution

in the Daerah closely parallels that of houses but is significantly less dense, for not every family has its own well. On the closely settled parts of the gongs three or four households often share a well. Others rely on the public wells found at the suraus, madrasahs and rest-houses. There are altogether 32 such public wells in the daerah.

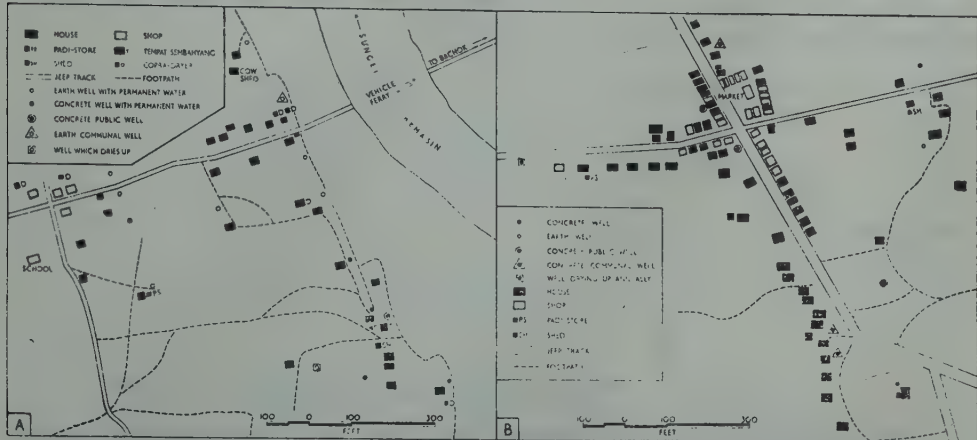


Fig. 22. Detail of : A. Pēngkalan Bahru. B. Bēris Kubor Bēsar, showing relation of houses to wells.

Of 387 wells in Mukim Pak Pura and Tanjong Jēring (information was not available for Mukim Tanjong Pauh), 283 are simple earth wells and 104 concrete-lined. The cost of such lining varies from \$15-30, depending on the diameter. Usually this is less than $3\frac{1}{2}$ ft., but 8 or 9 wells are of less than $2\frac{1}{2}$ ft., diameter. Such, for example, are the deep, brick-lined wells in the north of Mukim Pak Pura. During the north-east monsoon earth wells in the barohs are flooded and assume the role of duck-ponds. They are then temporarily abandoned by the villagers who fetch water from the bēris. During spells of drought, on the other hand, many wells dry up. The owners then dig them deeper or obtain water from more fortunate neighbours.

TABLE 14: CONCRETE AND EARTH WELLS IN MUKIMS PAK PURA AND TANJONG JERING

	CONCRETE WELL	EARTH WELL	TOTAL
MUKIM PAK PURA	99	196	295
MUKIM TANJONG JERING	5	87	92
TOTAL	104	283	387

(Information for Mukim Tanjong Pauh not available).

Rope is not used to draw water from the wells. A bucket of nibong sheath is lowered on a hook at the end of a thin pole, a simpler process permitted by the shallow depth of the majority of wells.

HEALTH AND SANITATION

There is no organized disposal of sewage in the Daerah and only a few dwellers beside the S. Kēmasin have constructed *jamban* over the water. Neither

is there any system of refuse disposal and kitchen waste is scattered over the compound or thrown under the house to be eaten by poultry. Water from the kitchen is often passed into a cesspool at the side of the house, a practice particularly prevalent in Mukim Tanjong Jering, and where several houses are situated close together the cesspools often coalesce. Generally speaking, however, the siting of settlements on the porous sands of the gongs facilitates percolation and water does not stand long on the surface.

TABLE 15: ADEQUACY OF WATER SUPPLIES IN DAERAH TANJONG PAUH

MUKIM	NUMBER OF HOUSEHOLDS WHOSE WELLS SELDOM DRY UP	NUMBER OF HOUSEHOLDS WHO DIG THEIR OWN WELLS DEEPER	NUMBER OF HOUSEHOLDS WHO RESORT TO NEIGHBOURS' WELLS	TOTAL
TANJONG PAUH	90	24	18	132
PAK PURA	166	79	36	271
TANJONG JERING	58	17	12	87
TOTAL	314	120	66	490

The nearest Government dispensary is at Bachok. The dispenser reports that the most common disorders treated are fever, skin complaints, rheumatism, diseases of the larynx, trachea and eye, and bronchitis. No malaria cases are treated, and it seems that this disease is now an endemic burden with little effect on the lives of the people.

PART II
MUKIM PADANG PAUH
PERLIS

CHAPTER I

THE LAND

Mukim Padang Pauh is situated in the extreme north-west of Malaya on the northern fringe of the Kedah plain.¹ Roughly rectangular in shape and measuring a maximum of two miles from east to west by one and a half from north to south, it covers some 1,700 acres. Sungei Korok in the west and part of Sungei Santan in the south-east form the only natural limits to the mukim, the remaining boundaries being either arbitrary lines or, as in the north, a laterite road (Fig. 23). Mukim Padang Pauh is thus an administrative rather than a geographical unit, for its physical features continue beyond its boundaries. The metalled road which runs from north to south through the mukim from Kaki Bukit to Kangar provides the people with a line of easy communication and transport and also acts as the channel by which external influences permeate local life.

The topography of the mukim is without striking physical features. It slopes gradually from some 40 ft. above sea-level in the north-eastern corner to 15 in the south-west. The landscape consists wholly of flat *bĕndang* and *kampong* which seldom differ in level by more than four feet. In some instances the rise in level is imperceptible, the difference being apparent only through the consequent change in vegetation.

Sungei Santan, flowing through the Mukim, and Sungei Korok, forming its western boundary, drain Mukim Padang Pauh into the Malacca Strait by way of the Pĕrlis River. For most of its tortuous course through the Mukim, S. Santan is narrow and sluggish with a fall of only 14 ft. in four and a half miles, that is, a gradient of 1:990. A century ago it is reported to have been wider and swifter but constant tapping and damming of its headwaters through the years have reduced its volume, while the encroachment of *rĕmbia* (a water-side palm) has further accelerated deposition of silt in its bed.² In 1947 this river was canalized by the Drainage and Irrigation Department. S. Korok is a drain some 30-40 ft. in width, which as its name suggests (*korok* = to dig out) was excavated by *corv  e* to serve as a means of communication and transport to and from Kangar. In its three-and-a-half mile course the S. Korok falls a total of 15 ft. over a gradient of 1:1,232.

There is no organized irrigation in Padang Pauh but the mukim lies within an area of 'controlled drainage'. The flow of the Sungei Padang Malau is controlled by a dam some three miles north of the mukim (Fig. 23) whence a proportion of the water is diverted into a canalized stretch of the S. Santan. This Santan water enters Mukim Padang Pauh at two points. Most of it is retained in the Santan channel and used to water the fields in the eastern third of the mukim, but a comparatively minor quantity is fed into the *parits* bordering either side of Jalan Kaki Bukit. These, designed only to supply water for livestock and domestic use other than drinking, carry insufficient water to flood the *padi*-fields in the west of the mukim, so the western *parit* has its flow supplemented by water

1. The North Kedah plain is described in E.H.G. Dobby, "The North Kedah Plain," *Economic Geography*, vol. 27, no. 4 (Worcester, Mass., 1951), pp. 287-315.
2. The name *Santan* (=coconut milk) is derived from the whitish colour of its silt-laden water at many seasons of the year.

(*tandop*). These are of two types: *tandop batu* (concrete weirs) and *tandop sementara* (wooden dams). Three (1 concrete) are on the S. Santan while the other four (two concrete, two wooden) are spaced along the various parits bordering either side of the Kaki Bukit road. Farmers with fields bordering the S. Santan and the Jalan Kaki Bukit parits supplement these water controls with crude brushwood dams (*belat batang*) which divert water into particular fields. As soon as the water in the fields has reached the required depth, the *belat batang* are breached to allow equal opportunities to farmers further downstream. The distributaries by which water is fed into the fields are mostly short, usually serving directly only two or three fields, after which their water percolates from *bëndang* to *bëndang* (Fig. 25).

Even prior to 1947 when the Drainage and Irrigation Department assumed control of the area, destructive floods were infrequent. In the past twenty years the worst flood experienced in Mukim Padang Pauh was in 1942 when one stretch of the Alor Sena road and parts of Jalan Kaki Bukit were under five inches of water.

Since 1947, improved drainage consequent upon the regular clearing and dredging of the S. Santan and S. Korok has practically obviated the danger of flooding. More common are destructive droughts, which usually occur in June and July. According to local farmers, the worst drought experienced during the last forty years was in 1926 when many nurseries and transplanted seedlings were destroyed.

The climate of this area differs from that of more southerly parts of Malaya in having a marked dry season. The annual precipitation is 80 in. of which 67 in. fall during the period of the south-west winds from June to mid-November. The drier season extends from November to February and coincides with north-east winds. Only six inches of rain fall during the three-month period from December to February when harvesting takes place. The mean annual temperature is 81°F. While the annual range is only 3°F, the diurnal range varies from 20°F in the north-east monsoon season to 14°F during the south-west monsoon.

No scientific investigation of soil types has yet been undertaken in Pērlis and the following remarks are based on observation of physical properties. The soils of Mukim Padang Pauh, all developed on marine alluvium, can be classified broadly under two headings: (i) clayey soils (*tanah liat*) extending over two-thirds of the mukim. They range from light brown to dark grey according to location, exposure and subsurface conditions. Black gley soils, for example, occur in the waterlogged depression of Padang Tambak in the south-east of the Mukim and

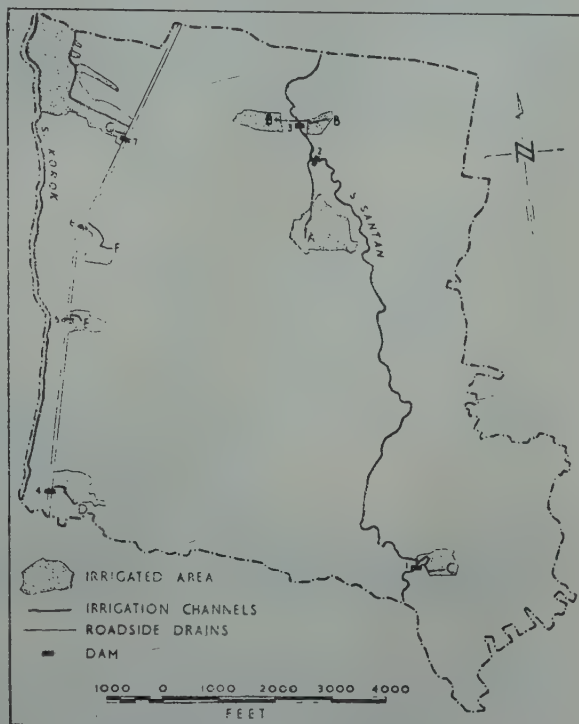


Fig. 25. Mukim Padang Pauh: water-controls and canals.

brown and grey clays on the higher fields of the north-west. (ii) loamy soils (*tanah champor*) are found mainly in the highest part of the Mukim, the north-east. In places they degenerate into coarse sandy loams or even loamy sands, many of which are under secondary forest (Fig. 24C). Lateritic pan occurs at varying depths below the surface throughout the Mukim. Of a mottled reddish-brown colour, it ranges from some six inches to two feet in thickness. It appears to be most continuous in Padang Lati Alor Sena in the north-east of the mukim where it is close enough to the surface to prohibit agriculture and to stunt the growth of natural vegetation.

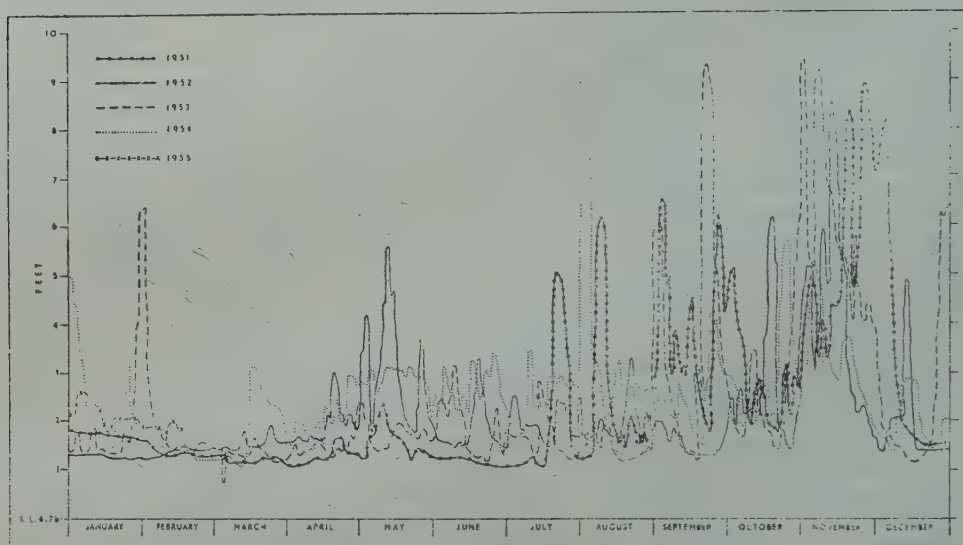


Fig. 26. Annual regime of the Sungei Korok, 1951-4 as recorded by a stick-gauge at Kayang rice-mill (By courtesy of the Drainage and Irrigation Department, Kangar).

There is no significant soil erosion taking place in the Mukim, mainly because the bunds of the padi-fields, besides delimiting property units, follow contours and act as terraces.

Although most of the natural vegetation cover, including the eponymous *pokok paub* (*Buchanania sessilifolia*) which is alleged to have covered large tracts in the past, has been cleared to make way for sawah or kampong, secondary forest still occupies some 64 acres, mainly in the north-east. The trees in this forest, as well as those bordering roads and rivers, include several species useful to the inhabitants. The hard and durable *balban* (*Vitex longisepala*) is fast disappearing as it is in demand for *tenggala* and *changkul* handles. *Medang lebar daun* (*Litsea grandis*), *medang gatai* (*Pithecellobium confertum*), *kériang burung* (*Eugenia microcalyx*), *kériang batu* (*Eugenia grandis*) and particularly *tēmok* are all used for house construction, so that it is not surprising that they do not remain in great numbers today. *Bēruas* (*Garcinia lombroiana*) and *tampong* (*Callicarpa maingayi*) provide durable sireh stakes and fences; *gēlam* (*Melaleuca leucodendron*) bark is used in tanning, while *maru* (the sea hibiscus, *Hibiscus filiceus*), in addition to serving as property markers, provides a bark from which good quality rope is made. The rest of the trees found in the mukim are used as firewood.

There are, too, 7 acres of bamboo (of which no less than ten species have been distinguished in the Mukim), mostly in small clumps. *Buloh bēlong* (*Dendro-*

calamas asper) is now scarce for it was formerly in great demand for house posts. *Buloh duri* (*Bambusa blumëana*) and *buloh sēgai*, the two most numerous species, are put to many uses, including house construction and the making of fishing traps and baskets. *Sēgai* is, as its name suggests (= ladder), used for the climbing of coconut and ibus palms as well as kampong fruit trees. *Buloh minyak* (*Bambusa vulgaris*) is preferred for house floors and rafters and for fence posts. *Buloh nipis*, *apok* and *mata rusa* (*Gigantochloa kurzii*) are the 'fine' bamboos, from which the walis of houses and jēlapangs, together with kērēbongs and baskets are plaited. *Buloh utan* is used for fences and its shoots (*rubong*) are eaten as vegetables.

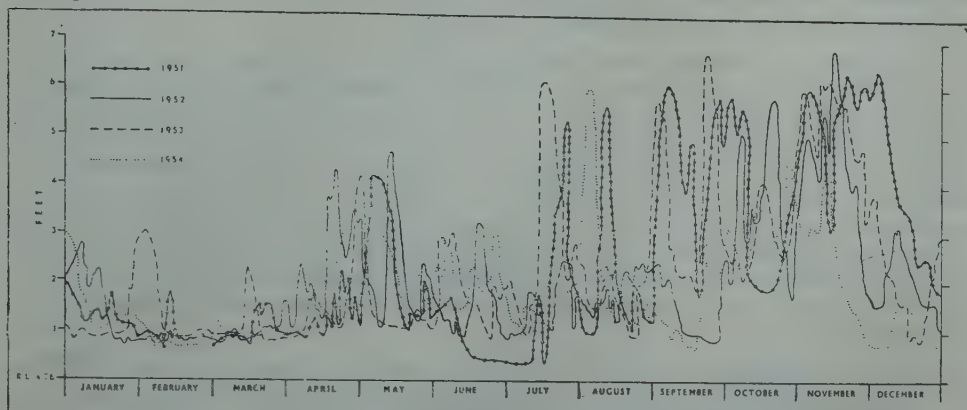


Fig. 27. Annual regime of the Sungei Rēpoh, 1951-4 as recorded by a stick-gauge near Kampong Rēpoh. (By courtesy of the Drainage and Irrigation Department, Kangar).

Of equal economic value to the inhabitants of Padang Pauh is the sago-palm (*rēmbia*: *Metroxylon sagus*) which borders the whole length of the S. Santan, in stretches up to 200 yards wide, and which has established smaller colonies throughout the Mukim. The sago pith provides both man and poultry with food, the leaves are made into atap, the fronds provide tough flooring material and their inside skin is plaited into covers (*tudong*). Leaves of the formerly extensive *ibus* (*Corypha utan*), now found only in limited stands near dwellings, make good quality mats and sacks.

The only shrubs of economic use are *palas* (*Licuala spinosa*) which is used for wrapping sweetmeats, and two species of *mēngkuang*, the leaves of which are plaited into mats, baskets and tudongs. *Mēngkuang padang*, which provides better quality leaves, occurs in small clumps, usually at bund-junctions in the padi-fields, while *mēngkuang layer* is a plant of the kampongs. *Rotan pahit* (*Calamus densiflorus*) and *rotan telin* are used as ropes and nose-halters for buffalo and cattle. The *kēlam dunia* (*Eupatorium odoratum*), which now features so prominently in the Mukim, has only in recent years spread from the kampongs to colonize the bunds of the padi-fields, where it must be cut twice a year. During the off-season *janggut kēli* (*Paspalum orbiculare*), *pēpara* (*Cyperus pilosus*) and *rumpit minyak* (*Brachiaria distachya*) colonize the fallow sawah, where they constitute a fairly close carpet interspersed with the water-fern *Morsilla* and *Scleria* sedges. In the constantly water-logged area of Padang Tambak these are replaced by the tall *mēndērōng* which is used by the villagers for plaiting coarse-textured mats and rice-sacks. *Sērangoon* grass (*Digitaria didactyla*) and carpet grass (*Axonopus affinis*) are the main fodder constituents of the *bēhor* (grazing lands), with *tēmuchut* (love grass: *Chrysopogon aciculatus*) as a common weed.

CHAPTER II

THE PEOPLE

The population of Mukim Padang Pauh as counted in August 1955 was found to be 2,240 in an area of 2.8 sq. miles. The average density was therefore 803 persons per sq. mile, but this figure does not give the true situation because the population is unevenly distributed (Fig. 28A).

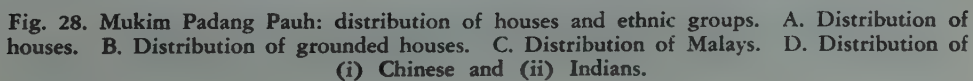
The siting of the settlements is a response chiefly to ease of communication and fertility of soil, the almost flat topography exerting little positive influence on the precise location of kampongs. The earliest settlement in the Mukim was Kampong Padang Pauh, situated on some of the best padi-land in the area and adjacent to the S. Korok which was formerly the main channel of communication with Kangar and other parts of Pěrlis. The influence of communications on the present settlement pattern is seen in the gravitation of houses towards the roads serving the Mukim. Areas with soils unsuitable for agricultural purposes are devoid of habitation, for example, the district of Alor Sena Padang Lati with an excessively lateritic soil. Three main patterns of settlement can be distinguished in the Mukim:

- (i) *linear settlements* are found along the roads and along the banks of the Santan River (Fig. 29B). Strung along the metalled Jalan Kaki Bukit in the west are Kampong Bohor Inai and Kampong Bohor Chichak. In the north Kampong Alor Sena borders the road of the same name. To the east, similar kampongs border the Santan Road throughout its whole length. Other linear settlements are found along the Santan River (for example, Kampong Kota), but these probably owe their sites as much to the availability of water and the proximity of their fields as to the communication facilities afforded by the river.
- (ii) *Nucleated settlements* form islands of kampong surrounded by padi-fields between Jalan Kaki Bukit in the west and the Santan road in the east, for example, Kampongs Mesjid, Pětal, Bělukar and Tělaga Kandis (Fig. 29C). These kampongs, only a few feet above the surrounding sawah, are simply remnants of the original terrain which have not been converted to padi-fields.
- (iii) *Dispersed settlements* occur on the lateritic soils in the north-east of the Mukim in the district of Alor Sena Padang Lati. Included in this category are a number of isolated houses such as that at Kampong Bělukar Kětrik.

It was discovered that 2,127 (95%) of the inhabitants of Mukim Padang Pauh were Malays. Only 91 were Chinese, 17 Indians and 5 Indonesian. The Malays, who are mainly padi farmers, are found in all the *kampongs* (Fig. 28C). The Chinese do not work directly on the land, but are found as shopkeepers and traders dispersed along the roads. Four households live along the Santan Road and the remaining 13 along Jalan Kaki Bukit. The Indians, all employees of the Public Works Department, are congregated in one group of labourers' quarters at the three-and-a-half mile point on Jalan Kaki Bukit.

Among the Malays of more than twelve years in the Mukim, as a whole females outnumber males by 97, the sexes being in the ratio of 765 females to 668 males (1.1:1.0). The Chinese, on the other hand, have an excess of 5 males

There are 504 households in the Mukim, with a total population of 2,240 persons, which gives an average of $4\frac{1}{2}$ persons per household. Of the total, 1,495 are over 12 years of age, that is, an average of just under 3 adults per household.



Altogether there are 745 children in the Mukim, or an average of $1\frac{1}{2}$ per household. Thus, the average family has some $4\frac{1}{2}$ members, but this figure is often misleading for the size of individual families varies from one to eleven persons.

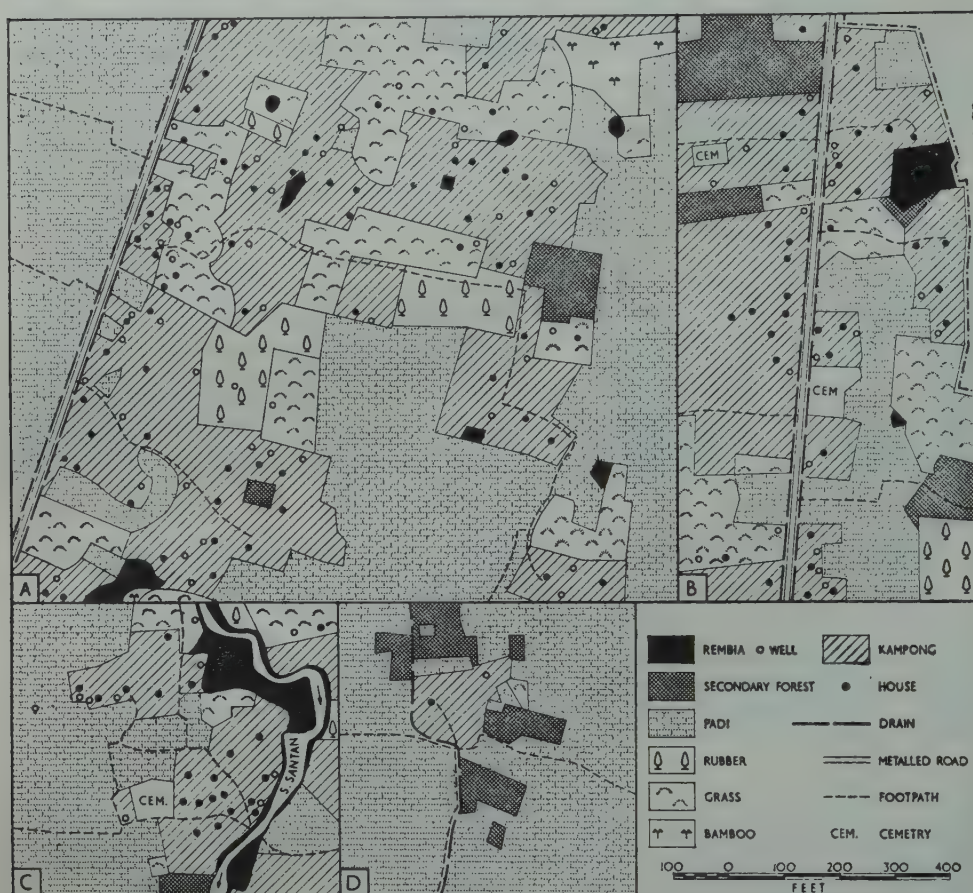


Fig. 29. Mukim Padang Pauh: typical settlement patterns. A. Kampong Padang Pauh Padang Bēlukur, showing a typical pattern of houses spaced evenly through the kampong land. B. The linear village of Kampong Santan Ulu. C. The nucleated settlement of Kampong Tēlaga Kandis. D. Isolated houses at Kampong Bēlukur Kētrik.

The original inhabitants of the Mukim are thought locally to have come from Sumatra. Since the end of the last century no organized movements of people in or out of the area have taken place and, apart from isolated instances of annual migration, changes in population during the past fifty years have been chiefly the result of natural increase. The *kētua*s and other old residents agree in estimating the population of the Mukim in 1900 as approximately 1,000 persons. According to the 1931 Census report, the number had increased to 1,634,¹ and by 1947 to 2,158.² Although no official figures are available, it is estimated locally that during the Japanese occupation (1941-5) there was a temporary increase of

1. C.A. Vlieland, *A Report on the 1931 Census* (London, 1932), table 19, p. 156.

2. M.V. del Tufo, *A Report on the 1947 Census of Population* (London, 1949), table 5, p. 158.

about 100 persons, mainly fugitives from the Japanese labour force in Siam or migrants from neighbouring states in North Malaya who were unemployed or suffering from a shortage of food. After the war most of these returned to their homes so that they were not in the 1947 census returns. The Emergency has little effect on the population of Padang Pauh for it is situated outside the area of resettlement.

TABLE 16: POPULATION OF MUKIM PADANG PAUH

ETHNIC GROUP	1931	1947	1955
MALAYS	1,573	2,096	2,127
CHINESE	50	43	91
INDIANS	9	19	17
OTHERS	2	0	5 *
TOTAL	1,634	2,158	2,240

* Indonesians.

Based on C.A. Vlieland, *A Report on the 1931 Census* (London, 1932), M.V. del Tufo, *A Report on the 1947 Census of Population* (London, 1949), and the 1955 Investigation.

A comparison of the total obtained by the team by house-to-house enquiry with that of 1947 reveals a total increase of 82 persons (that is 4%) over eight years. The Malay population in this period has increased by 31 persons from 2,096 to 2,127, a percentage increase of 1.8. A high mortality rate among both infants and adults and a tendency for the younger folk to seek employment outside the mukim has kept this net increase low. During the same period the

TABLE 17: SIZES OF HOUSEHOLDS IN MUKIM PADANG PAUH

NUMBER OF PERSONS IN HOUSEHOLD	MALAYS	INDONESIANS	CHINESE	INDIANS
1	28	—	—	2
2	54	1	2	—
3	74	1	1	—
4	112	—	3	2
5	78	—	4	—
6	66	—	3	—
7	34	—	1	1
8	18	—	1	—
9	9	—	1	—
10	5	—	1	—
11	2	—	—	—
TOTAL	480	2	17	5

Chinese community more than doubled its numbers, (43 to 91) as a result of immigration. Of the 17 Chinese households, 12 have entered the Mukim during the last eight years. The policy of replacing Indian labour by Malay has not been in operation long enough to produce any marked effects, although the number of Indians employed was two less in 1955 than in 1947.

Fifty-six households are reported to have settled in the Mukim in the last ten years. Of these, 39 are Malay, 13 Chinese, 3 Indian and one Indonesian. Only 10 of these immigrants came from outside Pěrlis. The Malays came mainly from the neighbouring mukims, for example, 23 households from Abi, Paya and Ngolang. In the same period 13 Chinese households entered the mukim, 2 from Penang, 2 from Kědah, 6 from Kangar and three from other parts of Pěrlis, all attracted by opportunities for retail trade among the farming community of the Mukim.

TABLE 18: ORIGIN OF IMMIGRANTS INTO MUKIM PADANG PAUH SINCE 1945

PLACE OF ORIGIN	MALAYS	INDONESIANS	CHINESE	INDIANS
PERLIS				
Mukim Abi	9	—	—	—
Mukim Arau	2	—	1	—
Mukim Beseri	1	—	—	—
Mukim Chuping	1	1	1	—
Mukim Kayang	1	—	—	—
Mukim Ngolang	7	—	—	—
Mukim Oran	1	—	—	—
Mukim Paya	7	—	—	—
Mukim Sena	2	—	—	—
Mukim Seriap	1	—	—	—
Mukim Titi Tinggi	—	—	1	—
Mukim Utan Aji	3	—	—	—
Kangar	—	—	6	1
KEDAH	2	—	2	—
PROVINCE WELLESLEY	1	—	—	1
PENANG	—	—	2	—
PERAK	—	—	—	1
SINGAPORE	1	—	—	—
TOTAL	39	1	13	3

Only 28 households included a member engaged in daily work outside Mukim Padang Pauh but 245 farmed land in neighbouring mukims during the off-season of the padi cycle (Fig. 30). Their migration on bicycles to and from their lands outside the mukim is thus a seasonal event. About half the total number of seasonal migrants farm land in Mukim Bēsēri in the north-west of Pērlis State, and in Tanjong Sēnaleh, Wang Mu, Tasoh and Bukit Manik districts, where the State grants each farmer a Temporary Occupation Licence for about 5 acres. The main activity on these lands is rubber planting, with maize and tobacco as the chief catch crops.

There is also an annual movement into the Santan district of some 35 Patani Malays to help in the padi harvest. Most of these temporary immigrants are relatives of farmers in Mukim Padang Pauh.

There is very little movement within the Mukim itself. The houses are situated close to the fields and in no instance is a farmer required to travel more than a mile from his house to the field. The few rest sheds which are built close to seed beds provide shelter for bird-scarers rather than for travellers. The farmers walk to their fields in the morning and return home at one o'clock.

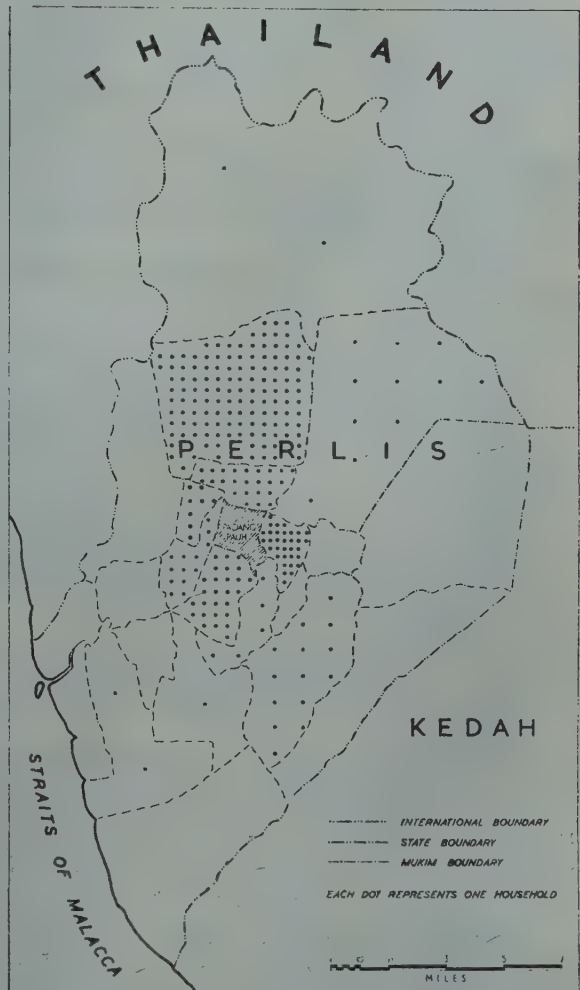


Fig. 30. Households of Mukim Padang Pauh farming land in neighbouring mukims during the off-season of the padi cycle.

HOUSES

There are 514 buildings in the Mukim, of which 505 are houses, (including shop-houses). Four hundred and seven of these are raised on stilts, and only 35 are built directly on the ground (Figs. 28A & B). All these latter are sited along the roads. At the time of the survey 10 houses were unoccupied. From the 1931 Census report it was ascertained that the Mukim then contained 434 houses (48 unoccupied).¹ By 1947 the number had risen to 501, so that there has been a net increase of only 4 houses during the last eight years.

1. del Tufo, op. cit., table 19, p. 156.

Size and shape

All but two of the houses occupied by Malays are raised on stilts varying from 4-6½ ft. in height and resting on 'elephant feet' of concrete or laterite. The inhabitants of the Mukim give as their reasons for placing their houses on piles one or more of the following: (1) Malay tradition, (2) protection against flood and dampness, (3) protection against snakes and mosquitoes.

The average size of floor-space in a Malay house is 414 sq. ft., and the average area per person 94 sq. ft. But such figures conceal considerable variations. The largest house, for example, has a floor space of 1,800 sq. ft., the smallest of only 264 sq. ft., that is, 180 sq. ft. and 46 sq. ft. per person respectively.

The Malay houses are either built to one of three designs or incorporate features of each. In their pure form these are as follows.

- (1) This type has wooden walls usually 7-8 ft. high and with large windows to match. A verandah, often ornamented with traditional Perlis designs and with steps leading up to the main building, functions as a sort of vestibule in front of the house. Such a dwelling as this is an indication that the resident is a man of means in the Mukim (Fig. 31A).
- (2) This type has walls only 4-5 ft. in height and constructed of thin bamboo (*buloh nipis*) woven into various traditional designs. It contains only one large room, centrally placed and flanked by a kitchen and a small closet. Extra living space can be achieved by roofing verandahs at either end. Any further extension usually takes the form of an annex or lean-to run up at one end (Fig. 31B).
- (3) These are small huts with low walls of plaited bamboo. Headroom is achieved by the use of a high-angle roof. Such houses are the habitations of the poorer folk in the Mukim (Fig. 31C).

All the Chinese houses are grounded and found along the roads, four along the Santan road and thirteen along Jalan Kaki Bukit. The average size of these houses is 816 sq. feet, but they range from 600 sq. feet (House 71) to 2,000 sq. feet (House 204). With the exception of two, the rest are shop-houses. The average floor space per person is 152 sq. feet. Usually a large part of the house is used as a shop and other parts as stores.

The Indians live in two houses which were built by Government. One is half-stilted and half-grounded with a zinc roof, while the other is grounded with a tiled roof. The amount of living space available for each householder is 350 sq. feet.

Building Material

The main types of timber used for the various parts of the house are: (a) stilts: chēngal and tēmoh; (b) floors and walls: chempah, balu ayam, mēranti, tēmoh and chēngal; (c) beams: nangka pipit, mēranti and chēngal. Bamboo was formerly the common building material in the Mukim but the high cost of weaving the bamboo strips and the exhaustion of bamboo stands has caused a decline in the use of this material. The art of weaving bamboo-matting for walls is disappearing, so that in the Mukim only two persons are reported to be skilled at this craft. The types of bamboo used are *buloh nipis* for the walls and the floors, *buloh duri*, *buloh minyak* and *buloh sēgai*. Since the last war more new houses have been built with wood than with bamboo as the total cost of labour and timber is less for a wood house.

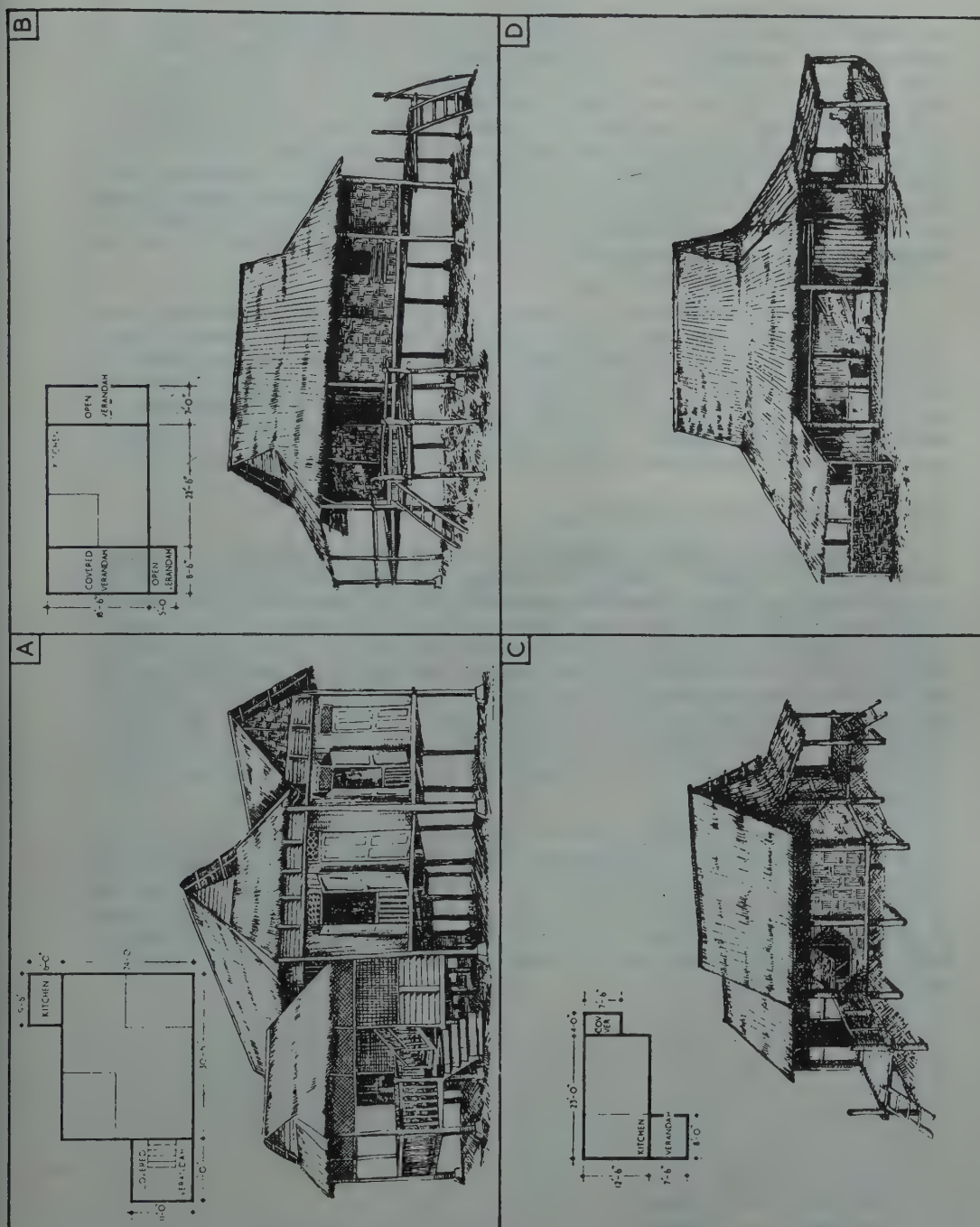


Fig. 31. Typical house styles in Mukim Padang Pauh. A. Wooden-walled house with large windows, the dwelling of one of the wealthier farmers (type 1 of the text). B. Medium-sized bamboo-walled house, the most common style (type 2 of the text). C. Small shack inhabited by an indigent farmer (type 3 of the text). D. Shop-house.

The most common roofing material used in the Mukim is atap made from the fronds of the *rẽmbia* palms which are common in the locality. Of the 514 buildings, 504 had atap roofs, 4 zinc, 4 tiles made locally and 2 asbestos roofs. The ataps are woven by the local inhabitants for their own use and sometimes for sale; only rarely do they buy them from the shop which charges fifteen cents a piece. The atap roofs are built at a greater angle than the roofs made from other materials, the angle from the horizontal being never less than 40° and in some cases as steep as 60°. This degree of pitch is necessary to shed rain and so prevent rotting of the atap and seepage of water. The number of ataps required for the roof depends on the pitch and the closeness of the atap when tied. One hundred and ten ataps are required for a roof set at an angle of 40° and covering a floor-space of 200 sq. feet.

One feature of the building of houses in the Mukim is that they are often constructed by stages over three years, depending on the funds in hand. Usually construction takes place after the harvest when ready cash is available. First the pillars and roof are put up; then the walls for the back part of the house, including the kitchen; then the walls of the main building, followed by the windows and lastly the verandah and steps. Usually the family moves in when only the back part of the house is ready and partly built houses are common sights in the Mukim.

Lifting of Houses (Usong Rumah)

The lifting of a house in its entirety from one point to another is a common feature of life in Pẽrlis. Usually the houses are lifted after harvest when the bare padi-fields can be used as thoroughfares for the operation. The tendency is to move houses from the inner parts of the Mukim towards the roadside. Labour is supplied voluntarily by the men of the Mukim who foregather after Friday prayers. The number required depends on the size of the house and the distance it has to be carried. As many as three mosque congregations, about four hundred and fifty persons, may be called to lift a large house. If the house is moved only a short distance tea and *bubor kacang*, a Malay bean porridge, is provided: for distances over four hundred yards a feast is usually served after the operation.

Thick bamboo poles are lashed to the stilts with lianas or rattan. With the help of those bamboo cross-bars the house is lifted on the shoulders of the people and slowly moved to the new spot. Trees and other obstacles in the way of this movement are cleared. This type of operation is common in the north of Malaya and quite different from that in South Malaya where the house is broken up and transferred to be rebuilt on the new spot in the manner of prefabricated dwellings.

CHAPTER III

PADI

Cultivating padi is easily the most important pursuit in Mukim Padang Pauh. Of the total of 1,707 acres, padi covers 1,211, representing about 66 per cent

TABLE 19: LAND USE IN MUKIM PADANG PAUH

Land Use	Acreage	Percentage of Total Mukim Acreage
Bëndang	1,120	66
Kampong	294	17
Grazing Land	116	7
Secondary Forest	67	4
Rēmbia	50	3
Rubber	41	2.5
Bamboo	7	0.5
Total	1,695	100.0

of the whole Mukim (Table 19). Out of a total of 509 householders, 382 (all Malay) are engaged in padi-growing.

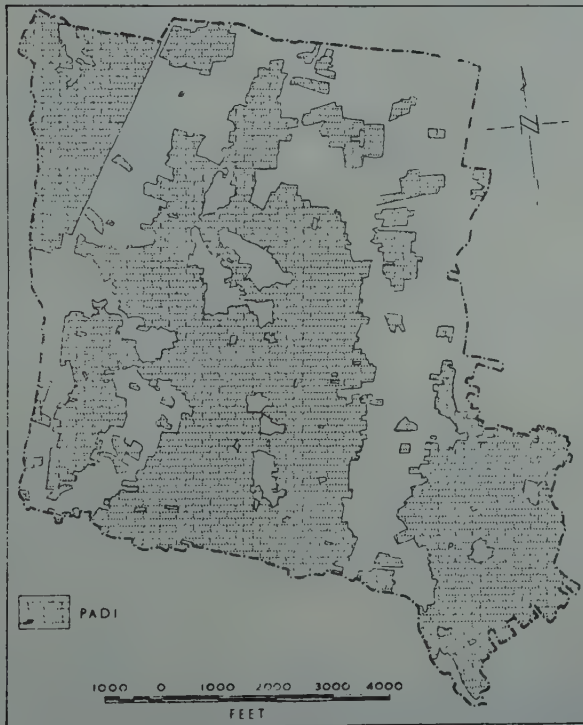


Fig. 32. Mukim Padang Pauh: distribution of padi-land.

Double-cropping of padi is not practised in the Mukim and no dry padi is planted.

Various strains of padi (rice and pulut) are grown in the Mukim. The common padi varieties are *Sēsāt pēngbuhu Kērajaan*, *Kuku bēruang*, *Anak didek*, *Kēlubi*, *Chagar butang*, *Bangkok*, *Machang*, *Isi Bumi*, *Radin Siam*, *Anak kuching*, *Lēpas butang*, *Tunjang* and *Anak Sawah*, of which the first four strains are the most popular. *Sēsāt pēngbuhu* is planted by 305 householders and officially reported to cover an area of 900 rēlongs, which is about 57% of the padi area. This padi strain is popular because lodging (the beating down of crops by wind) occurs only when north-east winds blow in the period of ripening, and reaping is therefore easier. Threshing of padi is also easiest in this strain, probably due to the weight of the padi

grains. (Table 20). It is to be noted, however, that each householder plants more than one strain.

TABLE 20: PADI STRAINS PLANTED IN MUKIM PADANG PAUH IN 1954

Padi Strains	Number of Householders Planting each Strain	Maturation Period
Sēsāt Pēnghulu	305	7 to 8 months
Kērajaan	156	7 — 8 "
Kuku bēruang	68	6 — 8 "
Anak didek	49	5 — 7 "
Kēlubi	17	6 — 8 "
Chagar hutang	17	5 — 8 "
Bangkok	16	6 — 7 "
Mayang batil	7	6 — 8 "
Radin Siam	6	7 — 8 "
Anak kuching	5	7 — 8 "
Lēpas hutang	5	7 — 8 "
Anak sawah	3	5 — 6 "
Che ali	3	7 — 8 "
Machang	2	8 — 9 "
Tunjang	2	7 — 8 "
Isi bumi	1	8 — 9 "

The pulut padis are of little economic importance and are planted only in small plots designed to supply the requirements of ceremonial occasions. Various strains are planted, the most popular being *Pulut sutra*, *Pulut galah*, *Pulut susu lēmbu*, *Pulut gantang alu*, *Pulut Pak Wan* and *Pulut bēsen*. (Table 21).

TABLE 21: PULUT STRAINS PLANTED IN MUKIM PADANG PAUH IN 1954

Pulut Strains	Number of Householders Planting each Strain	Maturation Period
Sutra	132	6 to 8 months
Galah	70	5 — 6 "
Susu lēmbu	52	6 — 7 "
Gantang alu	45	5 — 6 "
Pak Wan	37	6 — 8 "
Bēsen	21	7 — 8 "
Anak tali	17	7 — 8 "
Hitam	11	4 — 5 "
Jari burong	12	6 — 8 "
Sēri Patani	5	6 — 8 "
Pek	5	7 — 8 "
Jari bēruang	4	6 — 7 "
Nasi	4	7 — 8 "

CYCLE OF ACTIVITY

Padi activities begin in late May or early June at the onset of the South-West Monsoon. On a date between the first and the tenth of May in each year, the Commissioner of Lands convenes a meeting of all pēnghulus in the State of Pērlis to fix a date on or before which the owners and occupiers of bēndang must commence the sowing of seeds. This date forms the basis of other padi activities,

as stipulated in the *Padi Planting Enactment 1934, No: 14 of 1354 of the Government of Perlis* (see Table 4). The year 1955 was extraordinarily dry and heavy rains actually started to fall only in September, so the prescribed timing could not be kept.

TABLE 22: OFFICIAL DATES FOR PADI ACTIVITIES IN MUKIM PADANG PAUH

NATURE OF WORK	1950	1951	1952	1953	1954	1955
1. SOWING OF SEEDS BEGINS NOT LATER THAN	20/5	20/5	1/6	30/6	30/6	15/6
2. FIELD PREPARATION BEGINS	23/5	23/5	4/6	3/7	3/7	18/6
3. FIELD PREPARATION COMPLETED	20/8	20/8	1/9	30/9	30/9	15/9
4. TRANSPLANTING BEGINS	4/7	4/7	16/7	14/8	14/8	31/7

FIELD PROCESSES

The clearing of the fields is carried out not more than three days after the date prescribed for the beginning of the sowing of the seeds, which is usually in the latter half of May or during the month of June. Within three months of that date the transplanting of seedlings should be complete.

The fields are ploughed by means of a wooden plough (*těnggala*) drawn by a water-buffalo or bullocks. The *těnggala* is usually made of durable halban wood which is common in the Mukim. Occasionally, as a second choice, *těmoh* is used. The farmers can offer no satisfactory explanation as to why in some areas buffaloes are used, in others cattle, but it does seem that buffaloes are preferred on soft deep soils and oxen on harder clayey ground.

A farmer takes five days to plough a *rělong* of *běndang*. The number of ploughings necessary to produce the required tilth depends on the nature of the ground and also on the amount of weed growth. In Mukim Padang Pauh two ploughings are normally required, after which the furrows are smoothed out and weeds removed by means of a buffalo- or cattle-drawn harrow (*pěnyisir*), also made of halban wood. For further smoothing the tines of the harrow are fitted into the trunk of a banana tree and this converted implement, known as a *pělumat*, is drawn over the fields. This compresses the surface layers of the soil and fills in hollows in the ground, thus depriving the crabs which infest the *běndang* of their breeding holes. Finally the land is reduced to a state of soft mud, by which time the *běndang* should be under at least four inches of water. This water should remain in the fields throughout the growing period and to within three weeks of the grain ripening.

The bunds and watercourses which irrigate the *běndang* are freed from weeds and shrubs by means of a *changkul*, a tool indispensable to the farmers who use it for a multiplicity of operations such as digging, weeding, draining and hoeing. The weight of the *changkul* varies from about 4-6 lb. according to the use to which it is to be put. The handle is of halban wood, and its length, depending on the weight of the blade, may be from four-and-a-half to six feet. The *changkul* used for weeding is usually lighter and has a broader blade than that for digging purposes.

The Nursery

Seed-beds are located either in one corner of plots adjacent to dwellings or in lots situated centrally in relation to the fields whither the seedlings will be transplanted. These seed-beds are usually fenced in to prevent fowls and

goats encroaching. They are either ploughed or dug, the clods broken down and all weeds removed so that the soil is brought to a condition of fine mud.

Meanwhile the seeds are being steeped in water for three or four days, after which they are kept moist in a cool place for another three days. By this time germination has commenced and the seeds are ready for sowing. The nursery is then inundated and the seeds sown broadcast. The seedlings remain in the nursery for about forty-five days, at the end of which they are transplanted direct into the field. Transplanting is done in August or early September, when rainfall is at its maximum.

The seedlings are pulled up and tied into small bundles convenient for handling. The roots are then rinsed in water to remove the soil, and a few inches trimmed off the leaves of the plants in order to reduce evaporation and to prevent the seedlings drooping into the water when they are transplanted.

Transplanting

Transplanting is done exclusively by women. Three to five seedlings are pressed into the mud, the distance between each group being from ten to twelve inches. Payment for this operation is about fifteen cents per bundle (for planting and pulling). No implement is used for transplanting, which can be done only when water is standing in the fields. Seedlings will tolerate any depth of water so long as their tips are exposed.

The owners or tenants of *bëndang* land, upon completion of transplanting, are required by the Land Office to take proper care of the growing crops until they are harvested. Weeding, trimming the vegetation on the *batas* and in watercourses, maintaining adequate water in the *bëndang* and destroying pests are all operations undertaken during the growing period, which lasts till the end of December.

Harvesting

The maturation period of the padi varieties planted ranges from five to nine months, and the harvesting season extends from January to March, that is, the period of the North-East Monsoon.

The padi ears are cut one foot above the ground by means of a sickle known locally as *pisau pënggaya*. The *pisau pënuai*, an implement which cuts the ears of padi singly, is used to select grains for seeds. The severed heads are tied into small bundles and threshed by beating them on a wooden ladder placed against the inside of a tub. Both threshing and winnowing are done in the field on the same day. Winnowing is carried out in one of two ways. On a fine windy day the grain may be dropped from a height on to a mat, or padi may be placed on a basket-sieve that is tossed and twisted with a jerking movement which manoeuvres the empty grain and chaff to the edge of the sieve. This waste matter is then ejected by a sharp wrist movement. This operation is performed by the womenfolk. Only two householders possess hand-driven mechanical winnowing devices. Before being stored the threshed and cleaned grain is sun-dried for a few days on mats made of *ibus* leaves.

PADI STORAGE

The farmers normally sell their surplus padi to provide cash to tide them over until their next harvest. Padi set aside for consumption is stored in one of two receptacles. A *jëlapang* is the name given to a stilted padi-store with wooden

walls and an atap or zinc roof. It is invariably situated near the house. There are 269 such *jēlapangs* in the Mukim with an average capacity of 2,022 *gantangs* each. The other receptacle for storage is the *kērēbong*, a cylindrical bin of plaited bamboo through which, it is claimed, rats find difficulty in gnawing. These *kērēbongs* are always placed very close to the houses or next to the *jēlapangs*. There are 143 *kērēbongs* in the Mukim, the average capacity of each being 480 *gantangs*. The farmers assert that padi can be maintained in good condition if left unhusked in either of these stores. Wooden boxes and ibus sacks are also used for storing padi by those farmers who own neither *jēlapang* nor *kērēbong*. Those who own both use the latter for storing glutinous rice only. Those who have only a *kērēbong* store their pulut in sacks, which are then dumped into the bins together with the unhusked rice. Some *jēlapang* have partitions separating a space for storing glutinous rice.

YIELDS

From the point of view of productivity, Mukim Padang Pauh land is classified as Class II. The official yield estimate for the Mukim, based on a few test plots, is 240 *gantangs* per *rēlong*, with clayey soils more productive than loamy ones. The most productive fields are in Padang Tambak in the south-eastern sector of the Mukim, where yields of 3 *kunchas* (480 *gantangs*) per *rēlong* are not uncommon. The lowest yielding are the loamy soils of Padang Lati, Alor Sena and Padang Tok Samad in the north-eastern section of the Mukim, which average hardly one *kuncha* (160 *gantangs*) per *rēlong*. The farmers keep no records so that their estimates of production are subjective and dependent on their memories and the strength of their desire to help the investigator. On the basis of answers received, however, the total production of padi in Mukim Padang Pauh was calculated to be 217,019 *gantangs* for 1954/5, an average of 424 *gantangs* per household or 138 *gantangs* per *rēlong*. This is very much less than the official average estimate of 240 *gantangs* per *rēlong*, despite the fact that 1954/5 was by no means a bad year.

On the same basis 20,958 *gantangs* of glutinous rice were produced in the 1954/5 season. It proved impossible to construct a map showing the yield of individual lots for a number of reasons. In the first place, the numbers of the lots owned by a farmer are never recorded on his title deeds or on his receipts (which are all many householders possess) so that it is impossible to correlate owners and their property from these sources. Moreover, it was impossible in the period available to visit every lot in the Mukim in company with the owner at the time he was interviewed, in addition to which many owners were at the time of survey farming land outside the mukim (Chap. IV). Thus although the total yield could be ascertained for each household, it was not possible to discover from which fields the padi came.

LABOUR

Holdings of less than ten *rēlongs* are worked by the farmers themselves, but on larger homesteads labourers are often employed together with assistance from friends and relatives. Labourers are paid either in cash or in kind. For ploughing, a male labourer earns thirty dollars per *rēlong*. For transplanting and harvesting the labourer — of either sex — is paid respectively ten dollars and twelve dollars per *rēlong*. In 1954 about thirty-five male Malays from Patani were employed on the fields near Santan. Board and lodging were provided for them by the landowners.

FERTILIZERS

Most fields in the Mukim receive some manure. Local supplies of phosphates, in the form of a mixture of cave-earth and bat guano, are commonly applied once in three years. Those farmers who can afford it even use it every year. One hundred gantangs of guano are needed for one rělong of bëndang, at a cost of \$12.00. Fertilizer is usually applied during ploughing so that it becomes available to the padi plants during growth. Bat guano is obtained from caves in neighbouring limestone outliers located in Mukim Chuping, about eight miles from Padang Pauh. The caves are worked and owned by Malays. Guano is transported from mine to bëndang in lorries owned either by mine proprietors or by Malay or Chinese dealers.

Phosphate of ammonia is scattered over the seed-beds after germination. This fertilizer, sold at twenty cents per kati, is obtainable from shops in the Mukim and in Kangar. The questionnaires showed that 1,899 katis of phosphate of ammonia were used in 1954.

PESTS

Four pests are common in this Mukim: (i) rats; (ii) stem-borers (*Schoenobius incertelul*, a Lepidopteran insect); (iii) grain-sucking insects; and (iv) crabs:

- (i) Of these pests rats are the most destructive. They gnaw the succulent stems of young seedlings and even of mature plants. In this way nearly the whole plant can be destroyed within a day. When the crop has ripened the rats transfer their attention to the grain. They can be poisoned with zinc phosphide, which is mixed with cooked rice and left either in the fields or in the storehouses.
- (ii) Stem-borers. The larva, hatched from the egg which has been deposited by the adult on the lower surface of the leaves, bores into the stem just above the node nearest the ear. It then migrates by eating its way upward along the inside of the stem and emerges near the end of the ear. It then migrates downward, this time externally, towards the base of the stem where it pupates. In its adult stage it is a moth. Brownish and dried up leaves are the common signs of a severe attack by this insect, which can however be exterminated by cutting off the leaves that contain the eggs.
- (iii) Grain sucking insects are a common pest in the Mukim. The parasitic nymph sucks the padi grains by means of its proboscis. Since the nymphs can fly a little, sticky nets are used to trap them.
- (iv) Small water-crabs cut down young padi-plants. They can be caught by hand.

CHAPTER IV

OTHER AGRICULTURAL ACTIVITIES

OTHER CROPS

Padi occupies almost exactly two-thirds of the acreage of Mukim Padang Pauh, the next largest category of land use being kampong, covering 17% of the total acreage of the Mukim. Here coconuts predominate as an upper storey of vegetation, with fruit-trees and rubber below and shrubs and garden stuff at field level, all being included under the heading kampong land. Analysis of the working population emphasizes the dominance of padi-planting among the people of Padang Pauh (Table 23). It is the occupation of 75% of the total working population, the next largest category being general labourers (8% of the working population).

TABLE 23: MUKIM PADANG PAUH: CLASSIFICATION OF THE WORKING POPULATION

OCCUPATION	NUMBER OF HOUSEHOLDS				PERCENTAGE OF TOTAL HOUSEHOLDS IN MUKIM
	MALAY	CHINESE	INDIAN	TOTAL	
PADI-PLANTERS					
NO OFF-SEASON JOBS	93	—	—	93	18
WITH OFF-SEASON JOBS	289	—	—	289	57
					75
SHOPKEEPERS AND TRADERS	28	14	—	42	8
SCHOOL-TEACHERS	17	—	—	17	3
LIVING ON CHARITY	9	—	—	9	2
GOVERNMENT EMPLOYEES	8	—	—	8	2
P.W.D. LABOURERS	7	1	4	12	2
TRANSPORT WORKERS	6	1	—	7	1
VEGETABLE-GROWERS	4	—	—	4	0.8
CARPENTERS	3	—	—	3	0.6
BARBERS	1	—	—	1	—
RUBBER-TAPPERS	1	—	—	1	—
LANDLORD	1	—	—	1	—
ODD-JOBGING	22	—	—	22	4
	489	16	4	509	98.4

Coconuts

Although Padang Pauh has no coconut plantations, the palms are found scattered throughout the kampong land (Fig. 33A). Every house has its grove

which supplies sufficient nuts not only for home needs but often also for sale to Chinese dealers from shops on Jalan Kaki Bukit who collect a few nuts at a time for copra-making. Some 50,000 nuts were produced in the Mukim in 1954.

There are seven copra-kilns in the Mukim, five of which are owned by Chinese and two by Malays (Fig. 33A). Six of the kilns are sited along the roads. The kilns are of a fairly uniform pattern. The oven, constructed of clay plastered thickly over the husks and shells of coconuts, is placed below a smoking platform of wire-netting, and the whole enclosed in a simple shed. In all kilns the fuel used is coconut husks and shells. In 1954 the Chinese kilns produced 1,300 pikuls of copra, the Malay kilns 300 pikuls.

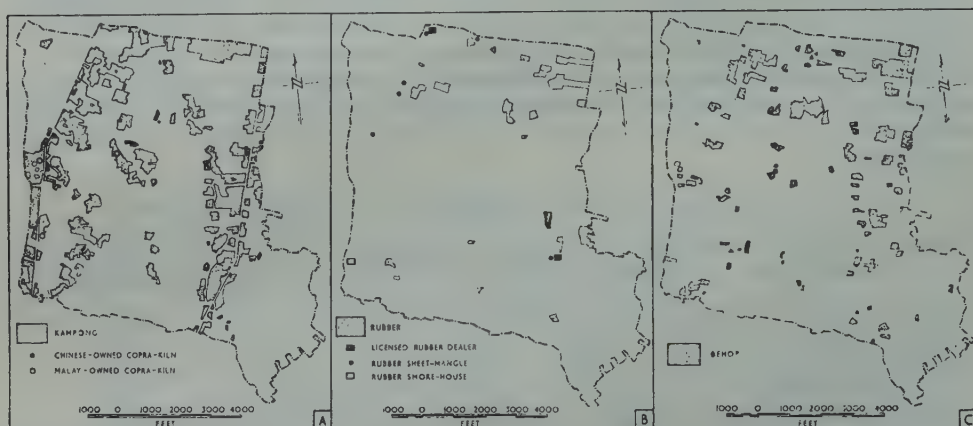


Fig. 33. Mukim Padang Pauh. A. Distribution of (i) kampung land and (ii) copra-kilns. B. Distribution of (i) land under rubber (ii) rubber-sheet mangles and (iii) licensed rubber-dealers. C. Béhōr.

Rubber

This crop occupies 41.5 acres (3% of the total acreage of the Mukim), in small lots owned mainly by Malays (Fig. 33B). In 1954 the total production from the Mukim was about 100 pikuls. Only one householder is a full-time tapper but 82 engage in it part-time, producing low-grade rubber sheets in simple processing huts of wood and atap. Two Malay provision shops are licensed as rubber-dealers: one at the junction of Kaki Bukit and Alor Sena Roads serves the north-western sector of the Mukim, the other at the junction of Santan Road and Jalan Haji Daud caters for the south-east.

A smoke-house built in 1935 is owned by a Chinese living in Kangar and managed by a Chinese resident in the Mukim (Fig. 37B). From 40 to 50 pikuls of sheet rubber are smoked each month, the sheets being brought from, and returned to, Kangar by lorry twice monthly. Local Malay labour is engaged for washing and carrying as and when required. About 10 tons of wood, brought by lorry from Bukit Kētri, are burnt annually.

Grazing lands (bēhor)

These amount to 116 acre or 7% of the total area of Mukim Padang Pauh. They are found scattered all over the Mukim, generally on slightly higher ground than the padi-fields themselves. The smaller and less accessible grazing lands are no more than resting places for cattle and buffaloes on their way to and from the fields.

Landholders who own several padi lots and have several head of cattle and buffalo reserve portions of their less fertile lands or even parts of their house compounds for grazing purposes, while some large lots, particularly those on the lateritic pan of Alor Sena Padang Lati, are given over solely to grazing. Owners of cattle and buffalo who own no grazing lands are allowed to share those of their more fortunate neighbours rent-free.

LIVESTOCK

Almost every householder keeps some classes of livestock, either for draught purposes or as a supplement to his diet. The totals of each class are as follows:

TABLE 24: LIVESTOCK IN MUKIM PADANG PAUH

OWNERS	FOWLS	DUCKS	BUFFALO	CATTLE	GOATS	MONKEYS
MALAYS	5,010	2,345	242	439	222	52
CHINESE	200	63	2	—	—	—
INDIANS	10	—	—	—	—	—

Buffalo and cattle are indispensable for the ploughing of the bëndang. The Malays seldom slaughter and never milk them. No stalls are provided for the beasts, which are tethered under or near the house. During the fallow season they graze the bëndang or even lots of kampong specially reserved.

Goats are reared mainly for meat for domestic use and occasionally for the market in Kangar. Poultry and eggs are bought up from local farmers mainly by Chinese shopkeepers in the Mukim, who in turn sell them to dealers in Kangar and Alor Star. The Chinese themselves keep large numbers of fowls and ducks as, being shopkeepers and not padi-growers, they can bestow more time on their care than can the Malay farmer.

Forty-seven households (all Malay) each keep a monkey trained to gather coconuts and hire it out at a commission of 20% paid in kind.

MILLING OF PADI

There is one small co-operative rice-mill in the Mukim, strategically situated at the junction of Jalan Kaki Bukit with Jalan Haji Daud, and drawing its customers from farmers living along these roads, as far distant as Kampong Santan in the east, Alor Sena in the north and an equal distance to the south. This mill came into operation only in November 1952. Its monthly consumption since then is shown in Fig. 34. It mills padi not only for personal and immediate consumption by local farmers but also for trading purposes, which explains the peak output following the harvest. For every pikul of padi milled, 65 katis of rice and 35 katis of bran are produced, for which the farmer pays one gantang of rice or

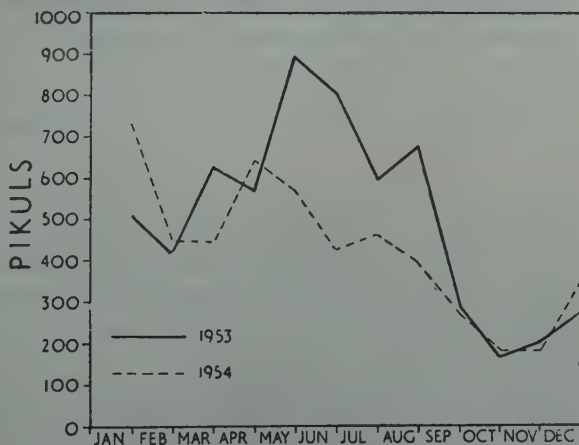


Fig. 34. The monthly consumption of padi by the co-operative mill in Mukim Padang Pauh during 1953 and 1954.

\$2. The retail price of rice at the mill over the last three years has been :

1952-3 \$50.00 per pikul; \$2.00 per gantang.

1954 \$45.00 per pikul; \$1.80 per gantang.

1955 \$42.50 per pikul; \$1.40 per gantang.

This mill has 125 members who send padi for milling; ten of them also buy rice for domestic use. In addition 38 customers from Kangar buy as much as 300 gantangs per month. Only two labourers are employed regularly, but a variable number of extra hands are engaged at the end of each month to fill sacks with excess bran which is then sold.

TIMBER MILLING

There are two saw-mills in the Mukim, one Malay-owned and the other Chinese-owned, and both sited beside Jalan Kaki Bukit (Fig. 36). The Malay-owned mill is powered by a diesel motor which operates circular saws, and employs four Malays. Its output is about 35 tons of timber per month. The Chinese-owned mill, depending solely on the hand-labour of one Malay and two Chinese sawyers, produces about 70 tons of timber each month. In both mills sawyers work on piece-rates, turning out pillars and planks of *chěngal*, *měranti*, *nangka pipit* and occasionally *chěngal batu*.

DOMESTIC INDUSTRIES

Atap- and mat-making is practised by nearly all the Malay families, but none of the Chinese engage in it. In 1954 some 25,000 pieces of atap were produced in the Mukim, more than half of which were retained for home use while the rest were sold to the shopkeepers along the Kaki Bukit and Santan roads. The ataps are made by folding the leaves of the sago-palm (*Metroxylon sagu*) over strips of bamboo or areca stems and sewing into place with *běmban* skin. Leaves can be obtained from the sago-palm once every six months.

In addition the Malay women of the Mukim weave mats, baskets and sacks for domestic use from sedges such as *měnderong* and *kěrchek*, and especially from leaves of *ibus* (*Corypha* sp.). A woman weaving during the afternoons, when she is not working in the padi-fields, produces two mats in three days.

CHAPTER V

LAND AND LANDOWNERS

For several reasons the team found major difficulty in obtaining ownership data. Land-holdings in the Mukim are entered in various registers¹ in Jawi script and use dates mainly according to the lunar calendar, though there are some Japanese and Siamese (Buddhist) dates. No addresses of landowners are recorded. The areas of holdings do not appear on the lot map of the Mukim. In the *Old Grants*, *Small Grants* and *Mukim Register* they are recorded in rēlongs, jēmbas and kakis, but the figures, especially those in the *Old Grants*, are often mere estimates. The areas are, it is true, gradually being revised by the incorporation of material from the latest survey completed only in 1954, but the duplicate copies kept by the landholders themselves still bear the original inaccurate figures. Moreover, the landholders often do not know the lot numbers of their holdings which are not mentioned on title-deeds or receipts for annual land dues. Because fields may have nobody working on them for considerable periods, and because some owners do not reside in the Mukim, it is a matter of great difficulty eliciting the facts of ownership for every lot in the Mukim. For these reasons, further complicated by the custom of householders claiming ownership of the property of their relatives, particularly of land belonging to their wives, parents and grandparents, and their frequent failure to register changes in effective title, it is difficult to discover how many and which lots are actually owned by one landholder. A number of householders in the Mukim, for example, claim that they have bought the lots on which they are now living, but there is no trace of such a transaction in the register. Still other householders have transferred their holdings to their children and grandchildren and changed the names on the title-deeds, but they continue to enjoy the usufruct of such lands until their death. Even then a large number of deceased landholders' names still remain on title-deeds held by their heirs. Not infrequently the name on the deed may be that of a great-great-grandparent. There are still other individuals who keep the title-deeds, even though the names recorded on them are those of their children or grandchildren. The title-deeds of such lots will be distributed only at the death of the original owners. This practice is particular common among those landholders who own several lots of land. Large holdings are non-existent. Only nine individuals claim to own more than ten acres of land each, amounting altogether to 126 acres or 0.1% of the total area.

LAND LOTS

The Mukim according to the Land Register has 1,865 lots, of which about 51% are of less than one rēlong and another 32% of no more than one or two rēlongs of land. Seventeen lots are between three and four acres, nine lots between four and five acres, and four lots from five to ten acres (the largest of these is 9.4 acres). Of the thirty lots of three to ten acres, nine are entirely bēndang and the others are difficult to classify individually as they are under mixed land-use such as kampong, grazing, secondary forest and undergrowth together with some rubber and rēmbia. Three of the four lots of more than

1. See note at end of this chapter.

five acres are in the lateritic pan area of Alor Sena Padang Lati, situated in the north-west of the Mukim. Of the other twenty-six lots between 3 and 5 acres, six are bëndang lots in the Padang Tambak area to the south-east of the Mukim. Six are in the infertile Kampong Tok Samad, four in Kampong Pétal and two in Kampong Kota.

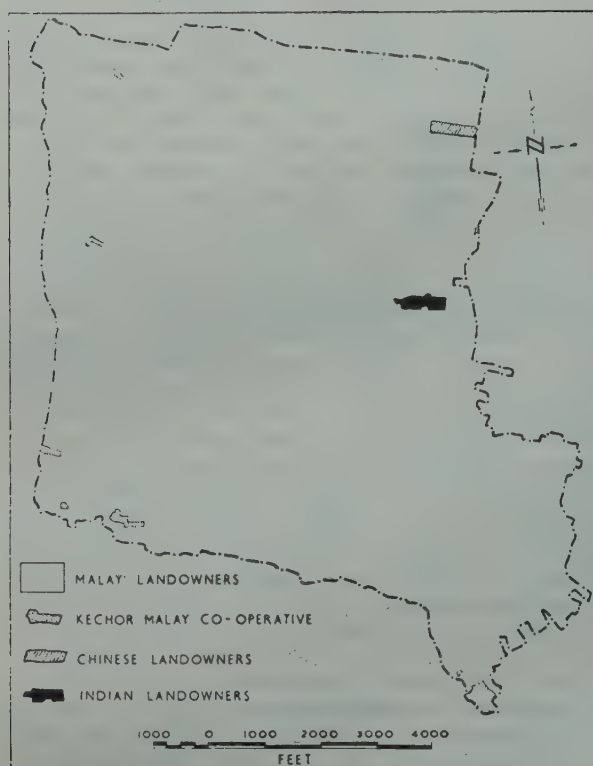


Fig. 35. Mukim Padang Pauh : landownership.

1,728 lots (with an area of 1,611 acres or 94% of the Mukim area) are owned by 1,851 Malays, of whom 801 are women. Mukim Padang Pauh has been included in the Malay Reservation since 1935, but there are nine Chinese and Indian title-holders who owned lands before the Reservation order came into force (Fig 35). Seven Chinese own nine lots with a total area of 10.6 acres or 0.6% of the Mukim area; while two Indians own two lots of 3.9 acres and 0.1 acre respectively or 0.2% of the Mukim. One co-operative owns two lots of bëndang, together amounting to 1.25 acres. All the lots mentioned above total 1,627 acres (or 95.8% of the Mukim area). The remainder of the Mukim is classified as State Land (an area of 80.2 acres or 4.6% of the Mukim), of which 9.2 acres or 0.5% have been reserved for schools, mosques and cemeteries.

OWNERSHIP OF LOTS

For reasons discussed above it is impossible to tell how many of the 1,851 names of Malay owners represent people living inside or outside the Mukim. Of the seven Chinese landowners, three live in the Mukim. One of the two Indian landowners lives in Alor Star while the other cannot be traced to any address. Despite the assistance of three kětua, in the whole of the Mukim only 29 owners living outside the Mukim were traced. These lived in the adjacent Mukims of Paya, Kēchor, Chuping, Ngolang and Sēmbirin. They own 64.5 acres of bëndang (or 3.8% of the total area of the Mukim) and live close enough to their lots to be able to work their fields themselves.

Changes of ownership are only recorded on three types of title-deeds, the *Small Grants*, the *Mukim Register* and the *Register Milek*. Of the 1,865 padi and non-padi lots shown on the lot-map, only 804 have changed owners since 1926.

Of the total of 1,865 padi and non-padi lots in the Mukim it was possible to identify the owners of only 771 padi-lots, covering 673 acres (i.e. 60% of all padi-land in the Mukim). Of these 771 padi-lots, it is reported that 642 (covering 554 acres or 32% of the Mukim area) are worked by the owners themselves, assisted by members of the family or relatives, while 117 lots (with an area of 101 acres or 6% of the Mukim area) are leased to tenant farmers under the *pawah* system.¹ However, two landholders who, while living in the neighbouring mukims of Paya and Chuping, own 19 acres in Padang Pauh (or 1% of the total Mukim area), rent out their lots of padi-land at the rate of five nalehs (= 800 gantangs) for every *re*long. The rent is paid in kind. The fields of aged land-owners, widows or divorcees are worked by relatives or neighbours on flexible agreements which are always verbal and on a year-to-year basis, while both parties share losses from crop failures. Under the *pawah* sharing system, certain owners of padi-lands provide bat guano as manure every three years, while other land-owners may share equally the cost of the manure with the tenant farmers. The farmers provide the labour but their services of transporting padi from the fields to the *jēlapangs* of the owners during the harvest time are paid for by the landowners.

TABLE 25: CHANGES IN LOT OWNERSHIP

	SMALL GRANTS	MUKIM REGISTER	REGISTER MILEK	TOTAL
BEFORE DECEMBER 1925	0	0	0	0
JAN. 1926—DEC. 1930	44	0	0	44
JAN. 1931—DEC. 1935	41	0	0	41
JAN. 1936—DEC. 1940	134	23	9	166
JAN. 1941—DEC. 1945	86	28	14	128
JAN. 1946—DEC. 1950	91	35	9	135
JAN. 1951—DEC. 1955	201	55	34	290
TOTAL	594	141	66	804

Summarizing the information recorded on the questionnaires, it was found that 269 households owned padi-land in Mukim Padang Pauh, of whom 19 did not work their fields but rented them to neighbours. Most of these 19 were Malays. As many as 243 households owned no sawah in the mukim, and only a dozen or so owned any in neighbouring mukims.

A NOTE ON LAND TITLES IN MUKIM PADANG PAUH

Lands in Mukim Padang Pauh are leased under no less than five types of title:—

- (i) Land held on *Old Grants*.
- (ii) Land held by entry in the *Register Milek*.
- (iii) Land held on *Small Grants*.
- (iv) Land held by entry in the *Mukim Register*.
- (v) Land held on *Temporary Occupation Licence*.

State Lands in the mukim amount to 80 acres or 5% of the Mukim area.

1. p. vi above.

Old Grants were first issued about seventy-five years ago and the practice was terminated in 1928. A number of these *Old Grants* were written out by hand, others were on printed forms. These grants were originally issued without numbers and no duplicate copies of such grants were kept until about 1904. In that year they were recalled for registration, and it was some time in 1908 or 1909 that rents were collected at the rate of 50 cents per *rělong*. The *Old Grants* issued between the years 1905 and 1928 were made in duplicate. When lands held under such grants were sold, fresh grants were issued and the previous ones cancelled.

Lands held by entry in the *Register Milek* were first recorded about 1915 and have continued until the present as the means of registering newly alienated lands and replacing *Old Grants* which have been lost or destroyed. In 1936 *Old Grants* previously issued without duplicates were again recalled for registration in the *Register Milek*.

In 1922, in accordance with the *Land Code* of that year, *Old Grants* were replaced by *Small Grants*, which also revised those titles recorded in the *Register Milek*. After 1936 all forms for *Small Grants* still unregistered were returned to the Survey Department in Kulim, Kědah for incorporation in the *Mukim Register*. All land titles issued in the past, as well as new ones, are now being recorded in the *Mukim Register*.

Lands held on *Temporary Occupation Licences* are registered in accordance with the *Penal Code* of 1937.

CHAPTER VI

COMMUNICATIONS AND SOCIAL ACTIVITIES

COMMUNICATIONS

Mukim Padang Pauh is well served by roads and paths. The metalled road from Kangar to Kaki Bukit and Padang Besar passes through the west of the Mukim. A laterite road joining the Jalan Kaki Bukit to the Santan road in the east forms the northern boundary of the Mukim, while near the southern boundary there is a laterite track, Jalan Haji Daud, which links Jalan Kaki Bukit to the Santan road (Fig. 36). Another laterite track also leads from Jalan Kaki Bukit to Kampong Mesjid. Besides these two laterite tracks, a network of footpaths links the various kampongs and fields. The bunds of the padi-fields are also used as footpaths.

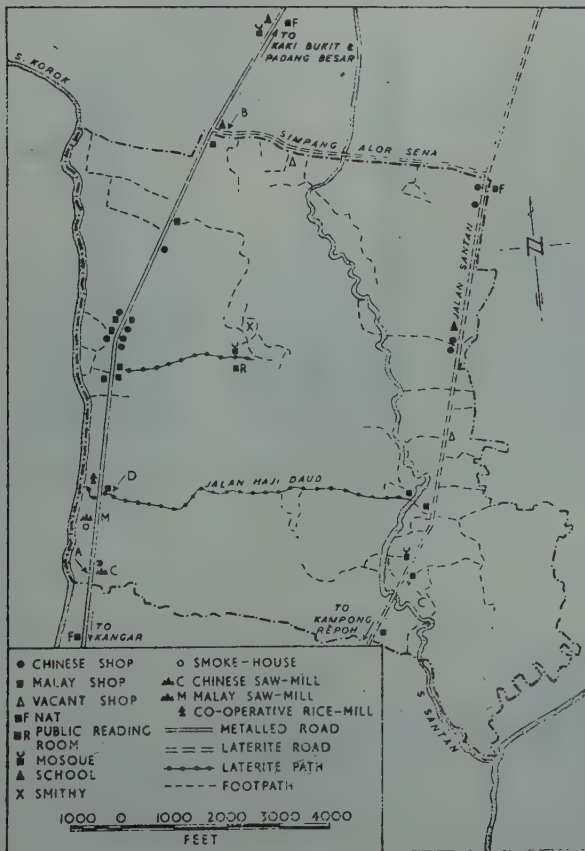


Fig. 36. Mukim Padang Pauh: communications and centres of activity.

Traffic counts were taken at various strategic points on Monday the 22nd of August. As this fell during the padi-growing period, the traffic may be considered normal. The data collected show three peak periods of movement: early morning, noon and evening. On the Jalan Kaki Bukit there are three peak periods of movement (Fig. 37A). In the morning farmers move south to their fields in Mukim Sena and children to school; at noon the school children return home. The peak movement from south to north in the evening is associated with the farmers going home after work. The traffic at all times is mainly cyclists and pedestrians, and the movement of such motor vehicles as do use the road is constant throughout the day. At night traffic is negligible.

The Santan road, a minor laterite road, has very little traffic compared with the Jalan Kaki Bukit. For reasons similar to those operating on Jalan Kaki Bukit the flow of traffic shows a movement to the south in the morning and to the north at noon and in the evening. On Simpang Alor Sena the peak periods of pedestrian movement in the morning and afternoon are due to the movement

of school children attending the Paya school. Along Jalan Haji Daud there is a heavy movement westward in the morning and eastward in the afternoon and evening. This is associated with the people going to work or school in the morning and returning at noon or in the evening.

The mode of transport along the roads and paths of the Mukim is mainly by bicycle. There are 634 bicycles, 9 motor-cars, 4 trishaws, 2 tricycles, 2 lorries

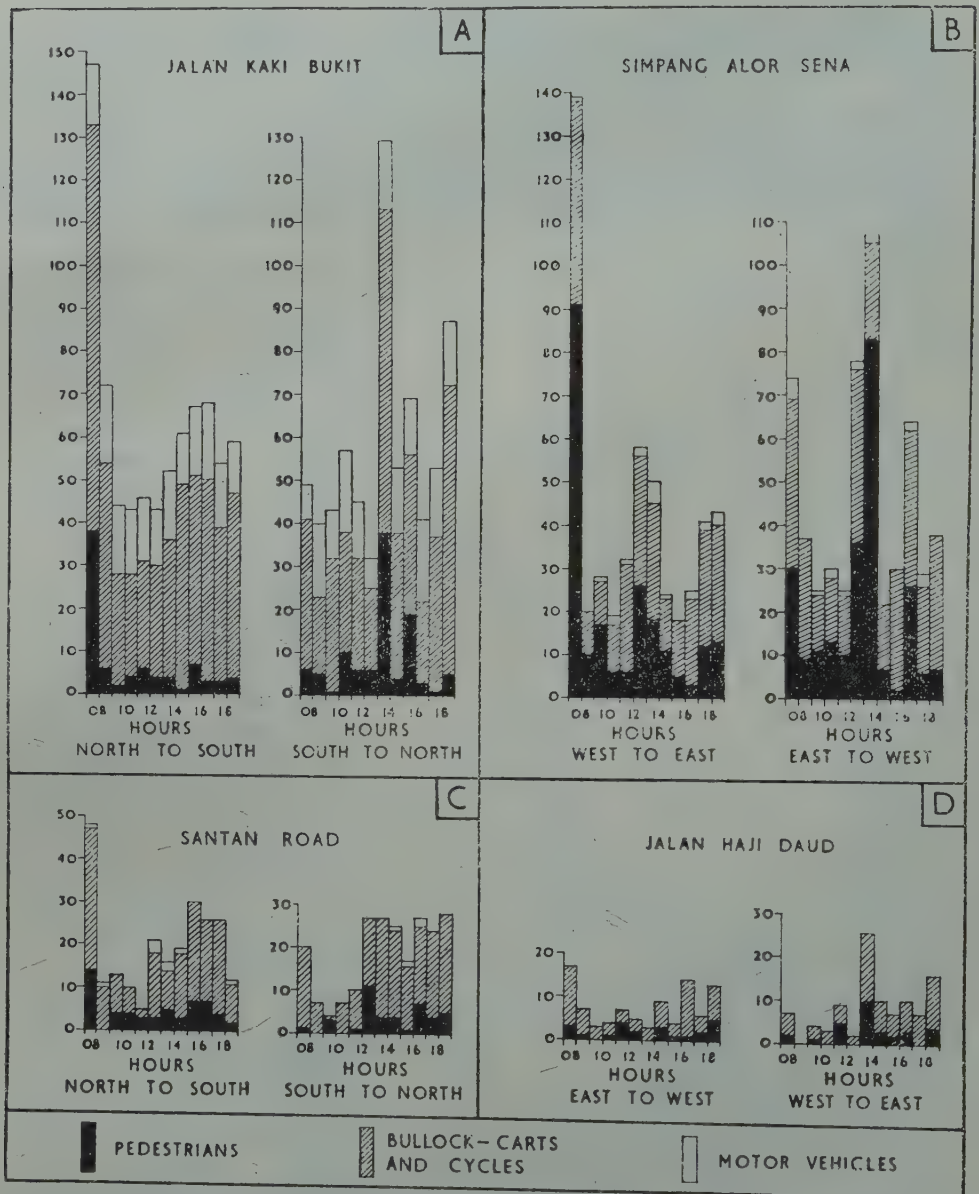


Fig. 37. Traffic on the main roads of Mukim Padang Pauh, 7 a.m. to 7 p.m. on 22nd August, 1955. A. Jalan Kaki Bukit. B. Jalan Simpang Alor Sena. C. Santan Road. D. Jalan Haji Daud.

and 1 motor-cycle in the mukim. The average number of bicycles per household is 1.3.

A regular and frequent motor-bus service is maintained by the Perlis Transport Company along the Jalan Kaki Bukit. The official rate is 4 cents per mile but passengers are charged in units of 5 cents, so that the fare for the $4\frac{1}{2}$ miles from Simpang Alor Sena to Kangar is 20 cents per adult. There is also a special bus each morning for children attending school at Kangar. Taxis ply regularly along the Jalan Kaki Bukit to Kangar. The fare for a passenger from Simpang Alor Sena to Kangar is 50 cents. The fare for a "four-seater" taxi is 45 cents a mile. No railway passes through the Mukim but there is a station at Bukit Kētri, about $2\frac{1}{2}$ miles north-east of the Mukim. Daily three north-bound local trains leave for Padang Besar and three south-bound trains for Prai and Alor Star. The trains have only second and third class accommodation at 6 and 4 cents per mile respectively.

FOCI OF ACTIVITIES

Mosques and religious schools

There are two mosques in the Mukim, at Santan and Kampong Mesjid (Fig. 36). In addition the mosque at Paya in the north-west, serves the people in the north of the Mukim. Some of the people also attend the Kangar mosque for Friday prayers.

Secular schools

There is one school in the Mukim, the Santan Malay School, with an enrolment of 275 students (170 boys and 105 girls) and 12 teachers. In that school 122 students, (78 boys and 44 girls) are from Mukim Padang Pauh and the rest are from the neighbouring mukims such as Ngolang and Chuping. Three other Malay schools outside the Mukim take pupils from Padang Pauh, the Paya Boys' and Girls' Schools and the Salang Malay school. Altogether 327 children in the Mukim, (177 boys and 150 girls) attend Malay schools, 64 children attend English schools (the Deoma English school and the Stella Maris School, both at Kangar), and 5 children attend the Khoong Aik Chinese School at Kangar. The total number of children from the Mukim who are attending these schools is 396.

Besides the children attending schools in Perlis there are some children who attend St. Xavier's and St. George's Schools in Penang and the Sultan Abdul Hamid College in Alor Star. Religious teaching for Malay boys and girls is under the direct control of the Department of Religious Affairs and there is a religious teacher on the staff of all Malay schools.

Community Reading Rooms

There are two Community Reading rooms in the Mukim, one at Simpang Alor Sena and the other at Kampong Mesjid. They were built in 1949 and in 1953 respectively by local subscription supplemented with a grant from the State. The centres are run by a committee elected annually from among the people. In each centre there is a radio and reading material.

Weekly fairs or nat

These are an integral part of the economic life of the countryside and, although none is held in the Mukim, Padang Pauh is served adequately by three in adjoining mukims: at Paya in the north-west, Santan in the north-east and

Batu Dua in the south-west, held on Wednesday, Thursday and Tuesday respectively. The same stall-holders circulate through the various fairs which are held from 9 a.m. to 12.30 p.m. on different days and are thus employed throughout the week. No fairs are held on Fridays. The Paya and Batu Dua Fairs were started in 1932, that at Santan in 1953. They began on a co-operative basis catering for members only, but now stall space is rented out to all and sundry at 20 to 30 cents a day, depending on the types of articles retailed. During the harvest the rent may be raised to 50 cents. At the end of the year members of the co-operative share the profits.

Shops

There are 26 shops in the Mukim, 17 owned by Malays and 9 by Chinese. The main types are provision shops which are found along the Jalan Kaki Bukit and Santan roads. The three coffee shops, one bicycle repair-shop, one tailor's shop, and a goldsmith are found along the Jalan Kaki Bukit. The smithy is in Kampong Mesjid.

TABLE 26: CLASSIFICATION OF SHOPS BY TYPE AND BY ETHNIC GROUP OF OWNER

TYPE OF SHOP	MALAY	CHINESE
1. PROVISION SHOP	13	6
2. COFFEE SHOP	2	1
3. BICYCLE SHOP	1	—
4. TAILOR'S SHOP	—	1
5. GOLDSMITHY	—	1
6. SMITHY	1	—
TOTAL	17	9

HYGIENE AND SANITATION

Domestic water supply

There are 300 wells in the Mukim all of which are more than five feet deep (Fig. 38A). Of these, 223 earth wells are less than ten feet, 66 earth wells more than ten feet, and eleven concrete wells are all more than ten feet, in depth. Most of the wells are sited from twenty to thirty yards away from the house. The depth of water in each well varies with the season. During the peak of the dry season from February to April all but 51 are dry (37 more than 10 ft. deep and 14 less than 10 ft.), and farmers share the use of these during the dry period (Fig. 38B).

With few exceptions the farmers of the Mukim depend on wells for both drinking and washing. Only those people living close to the Sungei Korok in the west and the Sungei Santan in the east use the rivers for bathing. Fifteen households along the southern end of Jalan Kaki Bukit reported that they drank tap-water from a public standpipe about 200 yards outside the mukim boundary (Fig. 38B). Within the Mukim there is only one water-tap, located at Kampong Pauh Kubang Arang.

Housing and Sanitation

The houses are well built with suitable material and over-crowding is rare (Chap. II). All houses built on land within 100 ft. of the centre of Jalan Kaki Bukit come within the Government building control area and are therefore

subject to certain sanitary and housing controls. No scavenging or conservancy services are provided in the Mukim. Household rubbish is either burnt or buried. The arrangements for the disposal of nightsoil are also generally the concern of the individual. Householders living along the Jalan Kaki Bukit and Alor Sena roads have mainly pit-latrines. Those along the Santan road and in some of the kampongs in the fields have pit-holes among the bushes, further screened by coconut fronds or ataps where necessary. Houses close to dense undergrowth or rēmbia swamps usually have no proper sanitary arrangements. Owing to the limited amount of kampong land available to each household, many latrines are too close to wells. Another insanitary feature is that no less than 244 families keep live-stock underneath their houses with the intention, they maintain, of preventing theft.

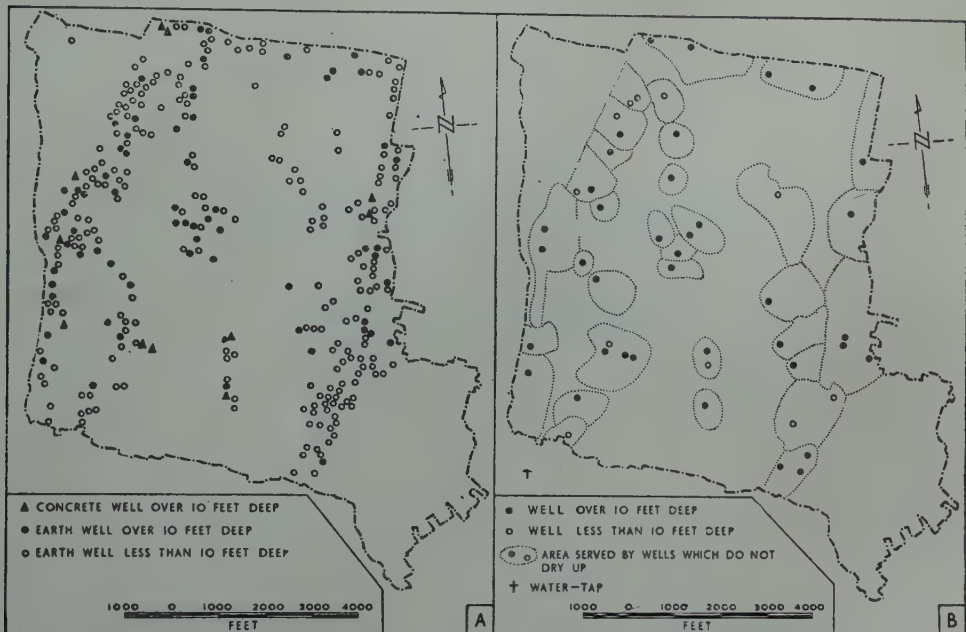


Fig. 38. Mukim Padang Pauh: domestic water supplies. A. Distribution of wells. B. Areas served by wells having permanent water.

Health

The health of the Mukim in 1955 was, generally speaking, satisfactory. There has been no serious out-break of any major infectious disease during the last five years. A few cases of malaria are found, though none were reported to the Health Authorities last year (1954). As a precautionary measure paludrine is distributed to school children in the Mukim.

There are no health centres or infant welfare clinics in the Mukim and patients requiring treatment have to attend the Kangar Hospital. A travelling dispensary, maintained by the St. John's Ambulance Brigade, pays fortnightly visits to two places in the Mukim. No records are kept by the travelling dispensary of the cases treated. Vaccination of all infants against smallpox is compulsory. Perhaps the chief disease in the Mukim is malnutrition, the result of an ill-balanced diet with a preponderance of rice and fish but very little meat and few vegetables. A large number of people, particularly children, suffer from eye infections, ascribed by the Health Authorities to malnutrition and infection at birth.

PART III
MUKIM BATU HAMPAR
NEGRI SEMBILAN

CHAPTER 1

THE LAND

Mukim Batu Hampar is an approximately rectangular area of 1,857·6 acres, situated among the foothills at the southern end of the main mountain range of Malaya. Part of the trunk road from Singapore to Kuala Lumpur forms its northern boundary but the rest of its perimeter is unrelated to either physical or cultural features (Fig. 39).

The Mukim has three physiographic divisions:— (1) the flood-plain of Sungei Batu Hampar; (2) the upland to the east of the flood-plain: (3) the upland to west of the flood-plain (Figs. 40A and D).¹ Over a total length of about two miles the flood-plain falls gently some 20 ft. from north-west to south-east to a height of 96 ft. above sea-level, the lowest point in the Mukim. Near the northern boundary it is about 750 yards wide but in the south near the Mampong Dam it is only 180 yards. The whole of the flood-plain has been laid out for *sawah*, most of which is artificially flooded. Bluffs bordering the plain on both sides range from about 2 ft. in height in the north-west to about 30 ft. at Bukit Tambang Kuda. To the west of the flood-plain is an undulating upland, mainly of quartzite and rising irregularly from about 100 ft. above sea-level to over 400 ft. at Bukit Sialang. This region is dissected by four miniature valleys, the lower parts of which have been converted to sawah while the upper reaches remain under natural swamp vegetation. The sawah of Anak Ayer Solok in the south-west is seldom more than a hundred yards wide but stretches for about a mile upstream. The eastern upland, developed on quartzite and granite, is less extensive and nowhere reaches 200 ft. It is traversed by a single nameless, narrow valley.

The main drainage channel in the Mukim is Sungei Batu Hampar, a tributary of Sungei Linggi which flows into the Straits of Malacca. The precise channel of the Sungei Batu Hampar has undergone considerable change in the last twenty-five years. Before the Drainage and Irrigation Department assumed control of the area the natural flow of the main stream was interrupted by a number of brushwood dams. These accelerated silting, thus raising the level of the bed and diverting the stream into what had previously been an irrigation channel. The new course, however, drains water from the fields rather than supplies it. The water-course now measures 25 ft. in width at the level of the flood-plain and is incised some 10 ft. below the surface. The gradient along the two-mile length within the Mukim is about 1/500.

Sungei Chẽmbong is an artificial distributary watering the western side of the flood-plain and used mainly for irrigating fields lying to the west of Sungei Batu Hampar. It derives part of its water from the Chẽmbong dam across the main river at a point outside the Mukim and part from streams draining the western upland. Pulau Tanjong Sena irrigation ditch performs a similar function on the eastern edge of the flood-plain. From Mampong Dam a third irrigation channel carries water southwards mainly to fields in the next Mukim, but also to the south-eastern corner of Mukim Batu Hampar. Water from these main canals is fed to the fields through a network of distributaries.

1. Subsequently in this report these features are referred to as the flood-plain, the eastern upland and the western upland respectively.

Before 1921 the whole of the padi-fields in the Mukim were irrigated by a number of brushwood dams along Sungei Batu Hampar. In 1921 with the construction of Chẽmbong dam in an adjoining Mukim, 20 acres of sawah in Tanjong Sena and Batu Tujoh Bẽlas received sufficient water for padi. There were still four brushwood dams along Sungei Hampar irrigating an area of approximately 100 acres and these were responsible for the main river changing its course, as described above. In 1935 Mampong dam was completed. It is said that nearly 160 acres of old padi-land, abandoned because of the difficulty of maintaining the brushwood dams, were then planted for the first time in fifteen years. The Mampong dam has 20 sq. miles of catchment area and 5,540 yards of water courses (*iali ayer*) to irrigate an area of 160 acres. It is a concrete

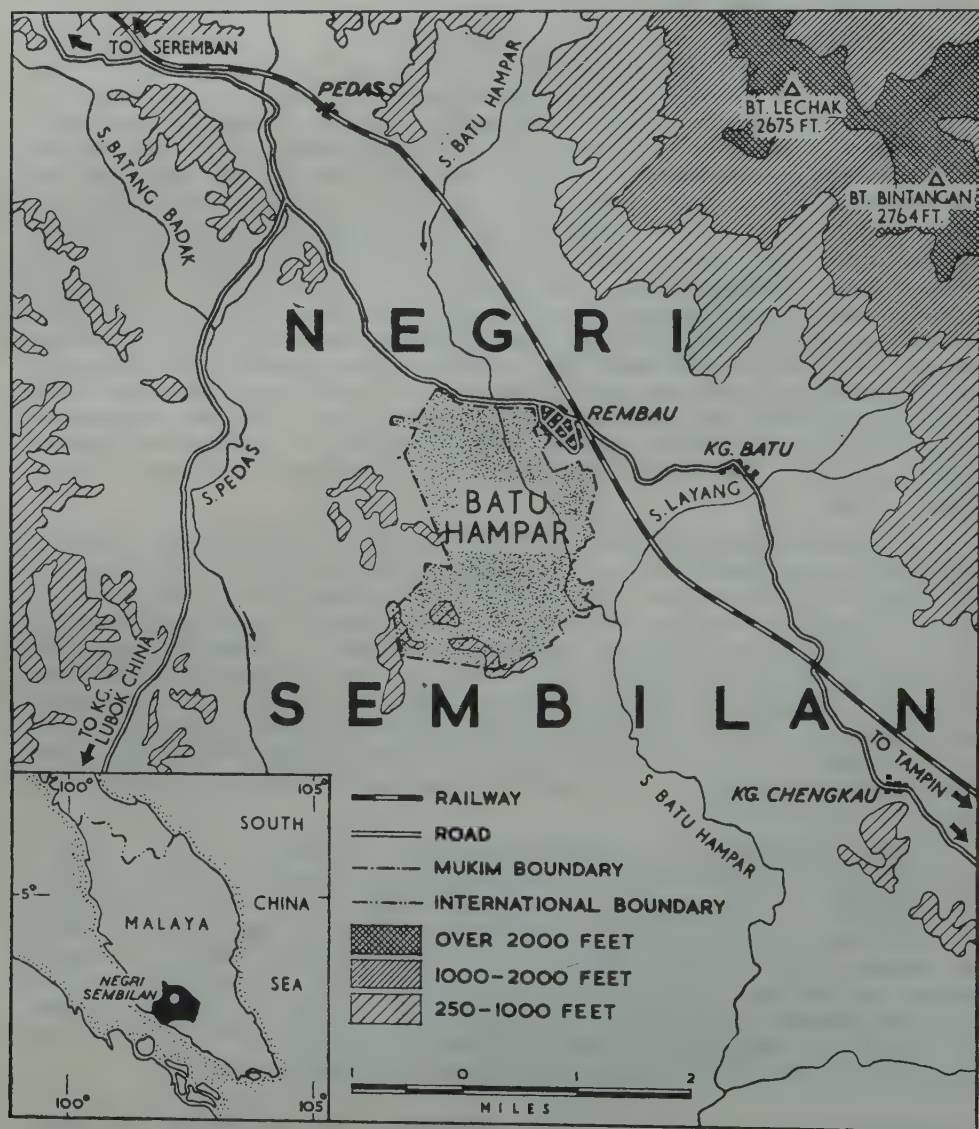


Fig. 39. The position of Mukim Batu Hampar in Nēgri Sēm Bilan.

dam with four drop-plank sluices each 4ft. 9in. wide. The length of the concrete is 23ft., the spill is 3ft. 3in. above the float-sheet. The spilling at both ends of the tali ayer is controlled by steel head-gates and the flow of the water from the dam is 4 cubic feet per second.

After the construction of the Mampong dam there were still 25 acres of sawah land around Sungei Mati¹ (the abandoned channel of Sungei Batu Hampar) which had insufficient water for wet-padi cultivation. The Mampong scheme supplies only a little water to this area, but water from a small stream flowing through Rembau town is utilized by two other brushwood dams for the sawah in this locality. The amount of water obtained from this stream, however, is not

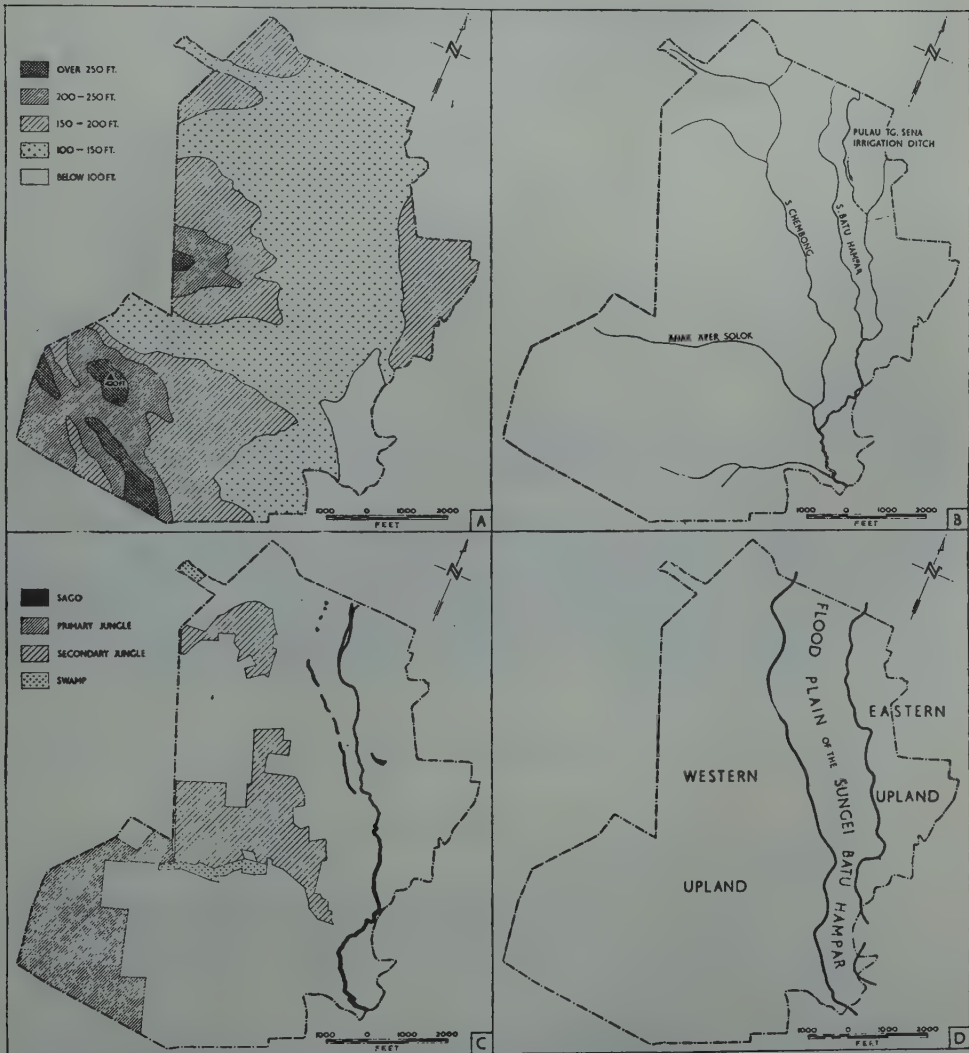


Fig. 40. Mukim Batu Hampar: physiography. A. Relief. B. Drainage. C. Natural vegetation. D. Physiographic divisions.

1. Malay = "dead river".

reliable. During the 1954/55 season 7 acres of sawah failed to produce any crop because of the failure of this stream.

The annual precipitation in this area is 90 in. Two maxima of about 10.5 in. occur in March and November during transitional periods between the monsoons, but no month has less than 3 in. The mean annual temperature is 80°F. The annual range does not exceed 3°F. but the diurnal range has an average of 12.5°F.

Table 27 shows the results of an analysis of soil samples taken from three lots in widely separated parts of the Batu Hampar flood-plain. Sample A was taken from a lot in the middle section of the plain, about 40 ft. from Sungei

TABLE 27: SOIL SAMPLES FROM MUKIM BATU HAMPAR

	A	B	C
GRAVEL	4.82	4.20	—
COARSE SAND	26.00	62.34	2.29
FINE SAND	42.83	22.64	50.83
SILT	4.36	2.41	15.16
CLAY	22.10	8.96	31.98
TOTAL	100.11	100.55	100.26
MOISTURE	1.80	0.53	2.15
LOSS ON IGNITION	5.04	1.76	6.29
ORGANIC MATTER	2.65	3.46	2.69
PH VALUE	4.54	4.65	4.95

(ANALYSIS BY R. HO, M.A. OF THE UNIVERSITY OF MALAYA)

Chěmbong; Sample B from the north-eastern sector and Sample C from the southernmost sector about 500 ft. from the bluff bordering the flood-plain. It is clear that there is a greater sand content in soil near the bluff. The proportions of clay and silt, on the other hand, are greater in the sample taken in the middle of the flood plain, further upstream. Table 28 gives the yields obtained from sample plots which are situated very close to those lots from which the soil samples were taken. However, the data of the two tables can be correlated only with caution for several reasons:

- (1) The sample plots are too small (13ft. x 13ft.) to be considered representative;
- (2) each plot is planted with a different strain of padi, which vitiates any comparison of yields;
- (3) the yield in any one plot shows considerable variation from point to point. As an illustration, the *jinjang* nearer the canal or the stream always produces a larger yield than the portion situated at the other extreme of the *jinjang*.

On the eastern and western uplands the soil is essentially similar to that in the valley, but in bare patches near the houses a larger percentage of sand is common. Here too the bare kampong surface encourages sheet erosion. In Bukit Sialang district and also in those areas west of the cart track through the western upland, lateritic concretions are commonly found about 6 in. below the surface.

These concretions range from a quarter of an inch to more than one foot in diameter.

The total area under natural vegetation is greater than that of padi and nearly equal to that of rubber. However, on the flood-plain most of the natural vegetation has been cleared. A notable exception is the 18 acres of sago (*Metroxylon* spp.) found along the river (Fig. 40C), though it is possible that some of this may have been planted to stabilize the banks of the river. The leaves are used for roofing and the pith for poultry feed as well as for occasional human consumption.

TABLE 28: PADI YIELDS FROM SAMPLE PLOTS IN THE 1954/55 SEASON

SAMPLE	LOCATION	PADI VARIETY	YIELD PER ACRE (GANTANGS)	REMARKS
A	AMPANG BATU AS WHOLE	SERENDAH KUNING	472	IRRIGATED BY D.I.D.
	LOT 54	NACHIN KUNING	382	IRRIGATED BY D.I.D.
B	BATU 17 AS WHOLE	PADI HITAM	338	IRRIGATED BY D.I.D.
	LOT 505	PADI HITAM	742	IRRIGATED BY D.I.D.
	495	PADI HITAM	427	IRRIGATED BY D.I.D.
C	SOLOK AS WHOLE	PADI HITAM	371	IRRIGATED BY D.I.D.
	LOT 20	PADI PUTEH	450	IRRIGATED BY D.I.D.

West of the cart track from Batu 17 to Solok are 243 acres of land classified as *Firewood and Buffalo Grazing Reserves*, but in fact under *bĕlukar*. The common plants in this association are *sĕndudok* (*Melastoma malabathricum*), *kĕmunting* (*Rhodomirtus* spp.) *jirak* (*Symplocos* spp.) and *bamboo* (*Bambusa* spp.). Various species of grasses grow in patches on the poorer land which, cleared during the Japanese occupation for tapioca and other crops, has now reverted to waste. Fresh-water swamp vegetation grows around the headwaters of the minor streams. Two hundred acres of forest covering the Bukit Sialang area have been divided into lots of about $2\frac{1}{2}$ acres each which have not so far been taken up.

CHAPTER II

THE PEOPLE

Between June and September, 1955 the investigating team enumerated 1,594 men, women and children, living in 361 houses in Mukim Batu Hampar. This connotes an average household of 4.6 persons and a population density of 548 per sq. mile, a figure about five times that for the Federation of Malaya as a whole (113 per sq. mile). The houses are distributed in two bands, one on either side of the Batu Hampar flood-plain; between the sawah and the higher undulating ground to east and west (Fig. 41). The western inhabited strip is narrower than that in the east where houses have extended on to the level upland to form the nucleated settlement of Kampong Bahru, an extension of Rembau town.

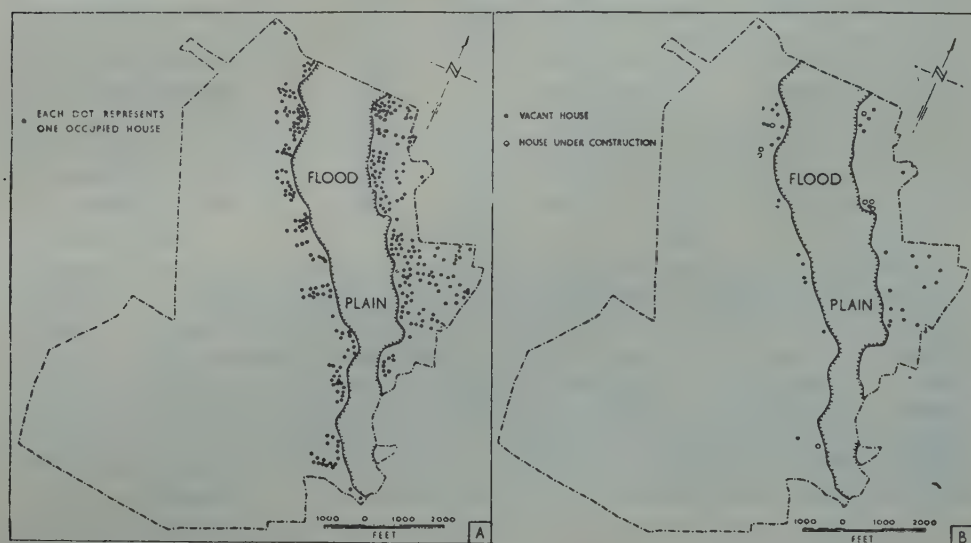


Fig. 41. Mukim Batu Hampar: distribution of houses. A. Occupied houses. B. Houses (i) under construction and (ii) empty. For the significance of vacant houses see p. 90.

RACIAL COMPOSITION

A classification of the population by race is shown in Table 1:

Malays constitute 94% of the total population of the Mukim. It will be noticed that the number of Malay females exceeds that of males by 95, a discrepancy resulting mainly from the migration of males in search of employment outside the Mukim. This may be attributed to three factors: (1) the exiguous area of sawah in the Mukim which, as population increases, makes it increasingly difficult for the padi-farmer to maintain a reasonable standard of living and which induces a growing distaste for agricultural work; (2) the attraction of the armed forces and other Government employment yielding an assured and regular income, opportunities for which have expanded during the Emergency, (3) the customary Minangkabau land laws which deprive males of a stake in the land.

The kampong lands and sawah are either Malay Reservation (*Enactment of the Federated Malay States, 1913*) or subject to customary land law (*Customary Tenure Enactment of Nēgri Sēmbilan, 1909*) so that they are exclusively Malay, a term here used to include the two Sumatrans. The only non-Malaysian in these areas is a Muslim Pakistani residing as the guest of a Malay in Bukit Tambang Kuda. The other communal groups are settled either on rented lots bordering the trunk road or in Kampong Bahru which is within the Rembau town limit. The Chinese community comprises 4 Cantonese households, 4 Hokkien, one Tiechiu and one Hakka household. Three of these families live in Kampong Bahru and the rest either in a row of terrace houses bordering the main road or on the premises of the Sum-Fatt saw-mill. One Indian household is resident in Kampong Bahru and three are interspersed among the Chinese families on the roadside lots.

TABLE 29: POPULATION OF MUKIM BATU HAMPAR BY ETHNIC GROUP

	MALES	FEMALES	CHILDREN	TOTAL
MALAYS	369	464	664	1,497
CHINESE	44	16	22	82
INDIANS & PAKISTANIS	7	3	3	13
OTHER MALAYSIANS	2	—	—	2
TOTAL	422	483	689	1,594

Those families with houses near the edge of the flood-plain are invariably padi-planters, only a few of whom tap rubber in their spare time. The majority of the rubber-tappers are found living as close as possible to their holdings on the western upland. Those who are neither planters nor tappers are mostly in Kampong Bahru.

POPULATION MOVEMENTS

The Malays of Mukim Batu Hampar are mainly descendants of fifteenth-century immigrants to Malaya from the Minangkabau districts of Sumatra. In the hilly country of Rembau, with its numerous river valleys, they found an environment with many similarities to that of their homeland. According to the 1931 Census the population of Mukim Batu Hampar was 1860,¹ a figure which had risen to 2,080 by 1947.² The disparity between this figure and the total of 1,594 obtained

TABLE 30: IMMIGRATION INTO MUKIM BATU HAMPAR

FROM	MALAYS	OTHER MALAYSIANS	CHINESE	INDIANS & PAKISTANIS	TOTAL
OTHER MUKIMS IN NEGRI SEMBILAN	36	—	8	3	47
OUTSIDE NEGRI SEMBILAN	21	—	2	—	23
OUTSIDE MALAYA	—	2	1	1	4
TOTAL	57	2	11	4	74

1. C.A. Vlieland, *British Malaya: A Report on the 1931 Census and Certain Problems of Vital Statistics* (London, 1932), p. 149.
2. M.V. del Tufo, *Malaya: A Report on the 1947 Census of Population* (London, 1949), p. 146.

by the team in a house-to-house count only eight years later (1955), coupled with the assertion by local farmers that there had been no mass emigration from the Mukim, led to enquiries at the District Office. No satisfactory reason was forthcoming, but the most likely explanation is that the labour force on Batu Hampar Estate, actually in Chembong Mukim, was included in the returns for Mukim Batu Hampar. This would account for the supposed presence of 443 Chinese in 1931 and 513 in 1947, none of whom are remembered by the present inhabitants of Mukim Batu Hampar.

TABLE 31: FORMER OCCUPATIONS OF IMMIGRANTS

OCCUPATION	MALAYS (INCLUDING SUMATRANS)	CHINESE	INDIANS	TOTAL
GOVERNMENT SERVICE	11	—	1	12
ARMED FORCES (INCLUDING POLICE)	18	—	—	18
AGRICULTURAL WORK	12	—	1	13
RUBBER-TAPPING	—	3	—	3
OTHER WORK	18	8	2	28
TOTAL	59	11	4	74

Since 1931 57 Malays have settled in the Mukim, partly as the result of marriage, when the husband goes to live in his wife's house, partly on discharge or retirement from Government employment elsewhere, and to a small extent on posting to the Mukim on current Government service. Apart from a Chinese girl born in 1947, all members of the non-Malay communities have migrated into the Mukim during the last fifteen years.

TABLE 32: PERIOD OF RESIDENCE OF IMMIGRANTS

YEARS	MALAYS	CHINESE	INDIANS	TOTAL
LESS THAN 1	16	4	1	21
1 — 5	19	4	1	24
5 — 10	8	2	0	10
MORE THAN 10	16	1	2	19
TOTAL	59	11	4	74

The 8 Chinese listed under the category of others were artisans and tradesmen, including two labourers from saw-mills outside the Mukim. Now the Chinese are either shopkeepers, or work at the saw-mill. Of the two recent Indian immigrants one is a shopkeeper, and one a retired Government official, while

TABLE 33: EMIGRATION FROM MUKIM BATU HAMPAR

DESTINATION	MALAYS		CHINESE		INDIANS		TOTAL
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	
OTHER MUKIM IN NEGRI SEMBILAN	62	8	2	—	—	—	72
OUTSIDE NEGRI SEMBILAN	130	56	—	—	1	—	187
TOTAL	192	64	2	—	1	—	259

the other two, both resident in the Mukim for more than ten years, are a shop-keeper and retired hospital assistant respectively.

Table 33 shows that two-thirds of those leaving Mukim Batu Hampar settle outside Nĕgri Sĕmbilan, a corollary of the desire on the part of the younger men of the Mukim to acquire employment in some form of Government service and to escape from the matriarchal influence of Nĕgri Sĕmbilan.

HOUSE TYPES

When the Minangkabau pioneers migrated to Malaya they retained their traditional type of stilted house with its flaired

gables which, from the front, have the appearance of buffalo horns. The general plan of the older houses in Batu Hampar is shown in Fig. 42. The *sĕrambi* is a closed verandah for the entertainment of guests, behind which is situated the *rumah bĕsar*, partly curtained off to form a bedroom. When the householder can afford it he builds on to his *rumah sĕrambi* a *rumah pangkar*, which he normally uses as a guest room or as a sick bay in times of illness. To the rear of the house are the *rumah bilek* (bedroom) and, often under a separate roof the *rumah dapor* or kitchen.

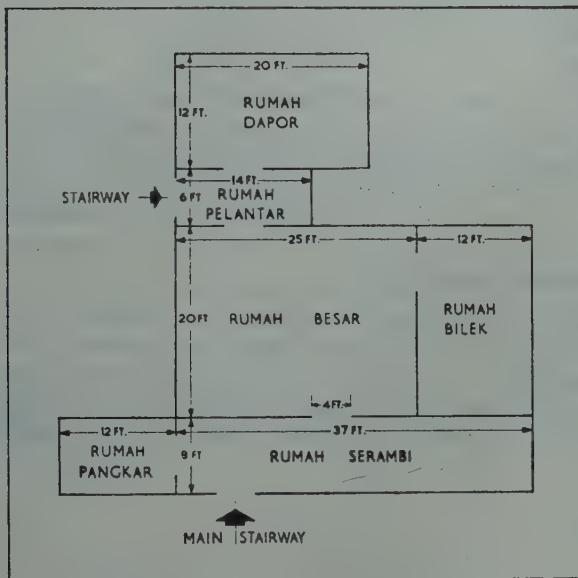


Fig. 42. Plan of typical old-style house in Mukim Batu Hampar.

bark still to be found in the Mukim. Granite "elephant feet" served as plinths for the pillars, while a platform of earth beneath the house protected the bare site from sheet erosion. The roof was of atap made from fronds of the nibong. The influence of immigrants and the introduction of the mechanical saw have wrought considerable change in this traditional pattern. Square machine-cut posts and smooth-planed planks have eliminated carving and decoration in recent houses, while durable zinc sheeting is gradually replacing atap as a roofing material. More prosperous householders often build their stairways of bricks and mortar, inlaid with glazed tiles in colourful designs. In addition planks, bottles and bricks are now planted round the earth base of the house as an additional protection from erosion. Most recent homes incorporate a hall, known as the *anjong*, for the entertainment of guests in place of the sheltered stairway of earlier houses. The entrance to such houses is then at the side of the *anjong*. There is, too, a tendency to build kitchens attached to the houses, with concrete floors resting directly on

The older Minangkabau houses were built of hand-hewn timbers, vestiges of which remain in the octagonal pillars and walls of flattened

the ground. The absence of structural timber in the Mukim and the high cost of milled planking is inducing a preference for walls of split bamboo, a material found in abundance throughout the Mukim. An analysis of the building materials employed in the Mukim showed that:—

353 houses were stilted; 28 grounded.

314 houses were multiple structures under more than one roof; 67 were essentially unitary structures under one roof.

320 houses had kitchens under separate roofs; 61 under the same roof.

328 houses had atap roofs; 38 zinc; 15 tile.

79% of the houses were of wood; 21% of split bamboo.

50% of the kitchens were of wood; 50% of split bamboo.

12% of the kitchens had concrete floors.

50% of the houses were wholly of wood.

21% of the houses were wholly of bamboo.

29% of the houses were partly of wood and partly of bamboo.

Parents are obliged to provide a house for each daughter on marriage, except for the youngest who inherits her mother's house. They therefore seek to build the requisite number of houses in stages, adding to the skeletons in times of prosperity but simply maintaining them when cash is scarce. Stocks of timber acquired for this purpose are stored under the house and regarded as valuable heirlooms. Six such houses were under construction at the time of the survey (Fig. 41B) and 26 had been completed since 1945.

As all houses are by customary law the property of the women, when a wife accompanies her husband to employment outside the Mukim, her house remains empty, only occasionally being maintained by relatives. The ensuing dilapidation is considered of little consequence for the site is valued more than the building itself. At the time of the survey there were 36 such vacant houses (Fig. 41B).

CHAPTER III

PADI

Padi is grown by 67% of all the households in Mukim Batu Hampar. Sawah covers 355 acres, that is, 29% of the total area alienated for cultivation or 20% of the total area of the Mukim. The Mukim Register records an area of 411 acres as sawah, but this was found to include at least 18 acres of sago, 16 acres occupied by water-courses, slumping along the banks of the S. Batu Hampar, and 15 acres which had reverted to swamp or been converted to rubber. According to the Agricultural Department, 18% of the sawah is occupied by bunds, in this instance 51 acres, so that only 315 acres are actually planted to padi in Mukim Batu Hampar. Thus the area officially recorded as under sawah is in fact made up as follows:—

Area planted in 1954/5	- - - - -	311 acres
Sago	- - - - -	18 acres
Bunds	- - - - -	51 acres
Former sawah now under swamp or rubber	- - - - -	15 acres
Area occupied by water-courses and slumping of banks of S. Batu Hampar	- - - - -	16 acres
		<hr/> 411 <hr/>

Nearly the whole of this sawah is in the flood-plain of the S. Batu Hampar (Fig. 43).

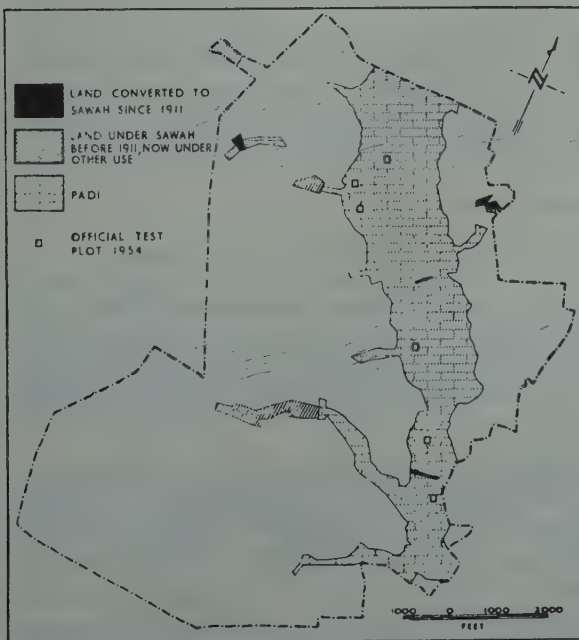


Fig. 43. Mukim Batu Hampar: distribution of sawah.

Only single cropping is attempted in the Mukim and the farmers complain that shortage of water makes it difficult to obtain even one crop a year.

Two padi strains, *sěrendah kuning* and *padi bitam*, account for 85% of the padi planted in Batu Hampar. The Agricultural Department, to encourage the planting of *sěrendah kuning* which it believes to be particularly well suited to the soil of the district, awards a prize for this strain at the State Agricultural and Horticultural Exhibition. *Sěrendah kuning* also produces the highest yield of all the strains grown in the Mukim—85 gantangs of padi per acre. Moreover, it also has a thinner husk so that 100 gantangs of padi after husking

yield as much as 75 gantangs of rice. Each farmer plants these strains on the land he considers most suitable to them. *Sěrendah kuning*, having a shorter stalk, is able to withstand shallow soils and high winds. It

grows best in those fields, adjacent to kampongs, where the water is polluted by household waste. It is, in fact, the only strain tolerant of such conditions. Padi hitam, with a longer stalk, needs a deeper soil allowing greater root development, and is therefore the dominant strain in fields towards the centre of the flood-plain. In addition to these, eight other strains are grown: *sěrendah puteh*, *sěrendah mogok*, *padi puteh*, *nachin*, *nachin kuning*, *merah isi*, *kampar* and *buku rotan*, which account in all for only about 10% of the padi planted. There was no apparent correlation between environmental factors and the distribution of these strains in the 1954/5 season.

In 1954/5 padi was planted in 306 lots, the average size of each being one acre, and the average yield 182 gantangs per acre. The team calculated on the basis of a house-to-house enquiry that the total production of padi in Mukim Batu Hampar in 1954/5 was 55,705 gantangs, together with 2,785 gantangs of pulut. It was impossible to obtain the yield of individual lots which most farmers, were they tenants or owners, were quite unable to calculate. They could estimate their total production but the proportion obtained from each lot was a concept about which they could provide no information. The situation was further complicated by the fact that a lot was often worked by several members of the same family, each taking a share of the harvest, so that the aggregate production was never assembled in one place. The average yield obtained by each padi-growing household was 233.5 gantangs which, on the assumption that each person consumed 10 gantangs of padi a month, would have lasted the average family of 4.6 persons from four to six months. If the entire population of the Mukim is included in the estimate, then the average yield per household is only 158 gantangs. In other words the Mukim supplies itself with its staple food for only 3½ months of the year.

The official estimates of padi yields in the District in the last four years were as follows:

SEASON	AVERAGE FOR TEST PLOT OF 11 FT. X 11 FT.	CALCULATED YIELD PER ACRE LESS 18 % FOR BATAS	AVERAGE YIELD FOR REMBAU DISTRICT
1951/2	3 CHUPAK	222	170
1952/3	1 GANTANG 3¾ PAN	366	313
1953/4	1:2 GANTANGS	344	400
1954/5	1:2 GANTANGS	357	386

The official yield for 1954/5, calculated from the yield of a number of test plots, of which six were in Mukim Batu Hampar (Fig. 43), is more than double the figure obtained by the team in a house-to-house enquiry. The discrepancy may be attributed to the following causes:

- (1) In every instance it was the woman of the house—that is, the landowner—who was interviewed. Owing to modesty, reticence and apprehension about an increase in tax or water-rate, many were reluctant to venture statements of fact; and when they were finally induced to divulge information, they took care to underestimate production.
- (2) There is no standard volumetric measure in use in the Mukim. The gantang is simply the contents of whatever container is used by the householder, sometimes the hollowed trunk of the *dědap*, sometimes an old milk tin.
- (3) It is possible that the Agricultural Department surveyors have over-estimated production for there is considerable variation in yield from lot to lot, and a

slightly generous allowance on one plot is greatly exaggerated during calculation. In the light of these remarks a conservative estimate of 200 gantangs per acre is not unreasonable.

CYCLE OF ACTIVITY

Every year the District Office, in accordance with *Land Rule 52/30*, announces dates for the sequence of padi-planting activities which have been decided by the District Officer and the pēnghulu, acting on the advice of the Agricultural

TABLE 34: PRESCRIBED DATES FOR PADI ACTIVITIES 1951/5

NATURE OF WORK	1951		1952		1953		1954		1955	
	DATE COM-MENCED	DATE COM-PLETED	DATE COM-MENCED	DATE COM-PLETED	DATE COM-MENCED	DATE COM-PLETED	DATE COM-MENCED	DATE COM-PLETED	DATE COM-MENCED	DATE COM-PLETED
REPAIR OF BUNDS AND DRAINS	27/3	26/4	25/3	26/4	20/5	14/6	1/6	22/6	25/5	10/6
TILLING OF THE FIELDS	27/4	12/6	28/4	1/7	15/6	14/8	23/6	31/7	11/6	31/7
ESTABLISHING PADI NURSERIES	1/5	15/5	18/5	29/5	15/7	14/8	1/7	31/7	1/7	14/7
TRANSPLANTING OF SEEDLINGS	10/6	30/6	27/6	22/7	15/8	14/9	1/8	31/8	1/8	31/8
FENCING THE FIELDS	1/7	15/7	21/8	28/8	15/9	14/10	1/9	30/9	1/9	30/9
WEEDING	10/7	TILL PADI IN EAR	29/10	29/11	15/10	TILL PADI IN EAR	1/10	TILL PADI IN EAR	1/10	TILL PADI IN EAR
SECOND CLEARING OF TALI AYER	AFTER 10TH JULY	—	—	—	—	—	—	—	—	—

Department. These directives are fixed well in advance of the season and lack of water in the sawah may prevent all or some of the farmers complying. In 1955, for example, padi was being planted some two months after the date prescribed. The prescribed dates for the last five years are given in Table 34.

FIELD PROCESSES

Early in July the farmers undertake the communal repair of water-courses, a vital operation in this Mukim where 74% of the sawah depends on irrigation. The bunds are carefully and compactly built to ensure the maximum retention of water. The grass on the bunds is trimmed off with changkuls and allowed to rot in the field for at least four days while the farmers attend to their seed-beds. Soft mud from the fields is used to broaden the bunds whose surfaces are smoothed either by hand or with a changkul.

All seed-beds in the mukim are dry and located in the kampong near the farm-houses (Fig. 44), a custom which probably owes its origin to the restricted acreage of sawah available in the district. The seed-beds are small, averaging some 20 ft. square. The seed-bed is first cleared of weeds with a changkul and then fenced with split bamboo or wire-netting. Before sowing, the padi seeds are soaked in water for twenty-four hours to facilitate sprouting. After they are broadcast a layer of loose soil is spread over them. On rainless days they must be watered at least once, for which purpose a garden watering-can is used. The whole process of preparing a seed-bed takes four days.

When the water in the sawah is 6 in. deep, the farmers start to till the fields. For this only a changkul is used, for the plots, averaging about



Fig. 44. Mukim Batu Hampar: distribution of seed-beds on 27th August, 1955.

farmers revisit the fields to replace any seedlings which have failed to take root, a process known as *měnyisip*. Until the crops are in ear the farmers pay frequent visits to their lots to replace plants which have not rooted, to ensure that there is adequate water and to remove weeds.

All harvesting is done by hand with the *tuai*. The ears are cut one by one and taken to the store-houses, the stalks being left in the fields to rot or to be grazed by buffalo. The grain is threshed from the ear by the farmers treading it with their feet in small quantities as and when required. The chaff is then

25ft. square, are too small for ploughing. After being changkulled the fields are left fallow for about three weeks to ensure the decomposition of the grasses, and are then cleared of weeds that may have sprung up. This process is known locally as *mělulok*.

From 40-48 days after seeding, the padi is ready for transplanting. The seedlings are pulled out of the nursery and their tops trimmed to prevent their drooping into the water, after which they are tied in bundles of a size convenient for carrying, dipped in liquid fertilizer (p. 95 below) and kept under the house (as a protection against the sun) for a couple of days until root-hairs begin to appear. Although men help to carry the seedlings to the fields, transplanting is performed only by women who press the plants into the soft mud by hand. A week later



Fig. 45. Mukim Batu Hampar. A. Distribution of padi-stores. B. Distribution of padi-pounders.

removed by the skilful manipulation of the padi in a bamboo pan, a process which, unlike the winnowing of Perlis or Kēlantan, is independent of the wind. The women separate the rice from the husk by means of the pounders known as *lesong indek*. A travelling rice-mill visits the Mukim once each month, and is patronized by 48 householders who bring to it some 30 pikuls of padi. Padi is stored in *rumah kēpok* (barns) and *kui* (special padi-stores). Where farmers own both they keep padi in the ear in the former, and threshed padi in the *kui*. Other farmers keep both threshed and unthreshed padi in *kuis*. There are 103 *kuis* and *rumah kēpoks* in the Mukim with a total storage capacity of 86,270 gantangs. The largest *kui* holds 1,000 gantangs, the smallest 100. Householders producing less than 100 gantangs invariably store their padi in the house as such a small reserve does not last long enough to make the building of a store worth while. All the padi produced in the Mukim, with the exception of 270 gantangs paid as rent for the use of 3 acres 1 rood 4 poles of padi-land, was retained by the householders. No padi was given away other than to the indigent aged. The rice given as gifts on the occasions of marriage or death is usually purchased from shops.

FERTILIZERS

The only fertilizer used in the Mukim was the bone-ash applied to seedlings by 177 out of the 239 farmers. During the 1954/5 season, 1,320 katis of bones, mostly purchased in Rembau town, were burnt for this purpose and applied to 229 of the 311 acres of sawah, that is, just under 6 katis of bones to each acre.

PESTS

Eighty-four farmers reported rats in their fields and 45 stem-borers, but none undertook any preventive measures. The fields where these pests were most common were those bordering sago swamps.

CHAPTERS IV

OTHER AGRICULTURAL ACTIVITIES

Although padi-land occupies less than a third of the total acreage of Batu Hampar, rubber and coconuts are also of considerable importance. Ninety-three households, 89 of which are padi-planters, tap 745 acres of rubber (Fig. 46A). Fifty-four of these acres are tapped by people from outside the Mukim. At the time of the survey 94 acres were left untapped and 50 acres were being replanted (Fig. 46B). The number of possible tapping days in a month varies from 15 to 20, and most of the trees tapped are those adjacent to the houses. A total of 435 katis of dried rubber is produced daily, that is, 4.7 katis per working household, which is sold mainly to dealers in Rembau.

Coconut palms are scattered throughout the kampong land (Fig. 46A), but they aggregate to a large number and fulfil an important role in local domestic life. From the mid-ribs of the fronds are made brooms and racks for cooking utensils while torches are improvised from the rest of the fronds. Coconut trunks provide the usual primitive bridges across the streams. Increase in population over the last quarter of a century has resulted in many palms being felled to make room for houses, so that today local produce is insufficient for the domestic need and imported nuts sell in the kampongs at 20 cents each. The traditional house preparation of oil from the nuts is now almost unknown.

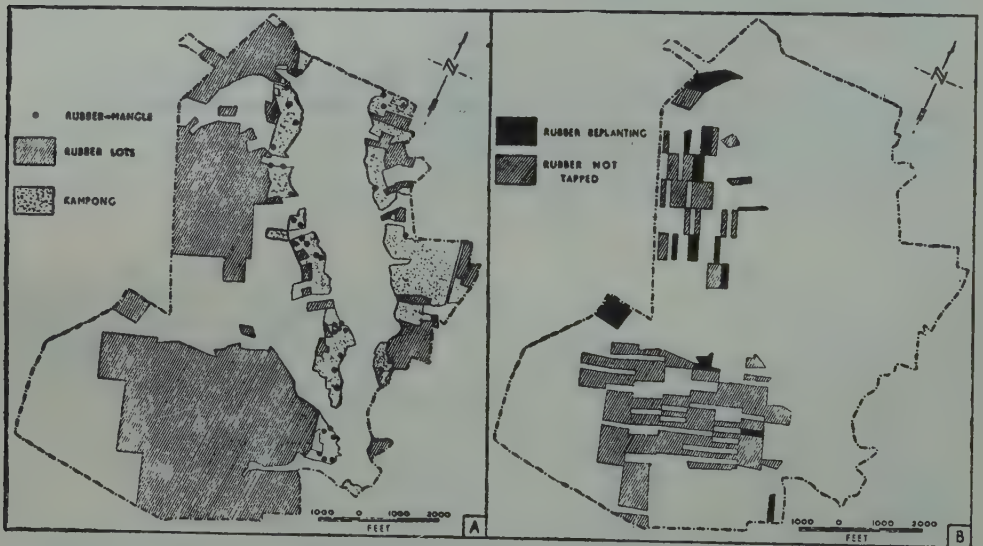


Fig. 46. Mukim Batu Hampar: distribution of rubber. A. Lots under rubber and distribution of rubber-mangles. B. Rubber not tapped and lots being replanted at the time of the survey.

LIVESTOCK

The livestock in Mukim Batu Hampar are as follows:—

Buffalo	121	goats	146	ducks	579
other cattle	8	fowls	21,068	geese	9

Only two families use buffalo for ploughing and even these are used solely on fields outside the Mukim. The rest of the buffalo and other cattle are kept

for meat and milk. During the growing season these beasts are, apart from daily exercise, tethered for grazing on the bunds, or confined to grass plots by wire or bamboo fences, but for the rest of the year they graze the fallow sawah.

Poultry are kept for home consumption. No householder reported that he sold fowls, ducks or eggs. The latter are, in fact, purchased from local shops to supplement the supplies in the Mukim. Most fowls are bought from Pēdas. Many of the kampong fowls are diseased and attempts at inoculation by the Veterinary Department have been nullified by lack of support, and even suspicion, on the part of farmers.

LOCAL INDUSTRIES

The Sum-Fatt saw-mill, with a band-saw and an auxiliary circular-saw and both diesel and electric power, was established in 1932 on a site beside the main road. Lumber is obtained from Pēdas, Tampin and Gēmas. The mill produces 100 tons of sawn timber a month, 30% of which is consumed locally and the rest exported by rail or through Port Swettenham to Singapore. The smaller timber unsuitable for construction purposes is used for fencing in the Mukim and as fuel by the military encampment at Tampin. The mill employs two Malays who live in the kampong and 20 Chinese reside on the premises.

A few householders still make baskets of split-bamboo and mengkuang, but most obtain their needs from coastal districts, even from as far afield as Malacca, through women dealers. The manufacture of atap roofing from rēmbia leaves is also decaying with the increasing use of zinc sheeting in the Mukim. Rope for tethering cattle is hand-spun from the leaf sheath of the *kabong* or *anau* palm which is found in abundance throughout the Mukim. The handles of farm implements such as changkuls and *pisau tuai* are shaped locally, and besoms made from the ribs of coconut fronds, while one man still fashions tēnggala from tēmbusu logs. The purchase of cheap sugar in the shops has now completely superseded its preparation from the sap of *kabong* flower. Fish-traps (*lukah*), woven of bamboo or rattan are set in streams at night while after harvest fish are also scooped out of the shallow water in the sawah with a shell-shaped bamboo basket known as a *tanggok*.

Eighty-three professional men, artisans and tradesmen enumerated in the Mukim were occupied as follows.

TABLE 35: OCCUPATIONS (EXCLUDING PADI-PLANTING AND RUBBER-TAPPING)

OCCUPATION	MALAYS	CHINESE	INDIANS	TOTAL
POLICE	9	—	—	9
OTHER GOVERNMENT SERVICE	20	—	1	21
LABOURERS ETC.	10	20 MALE 1 FEMALE	—	31 MALE 1 FEMALE
TEACHERS	3 MALE 2 FEMALE	—	—	3 MALE 2 FEMALE
SHOPKEEPERS	5 MALE 4 FEMALE	4	2	10 MALE 4 FEMALE
ICE-CREAM VENDOR	—	1	—	1
CLOG-MAKER	—	1	—	1
TOTAL	53	27	3	83

CHAPTER V

LAND & LANDOWNERS

Of a total of 1,858 acres, 1,395 acres or approximately three-quarters, have been alienated. The remaining area is State Land, made up of 200 acres of jungle on Bukit Sialang, 243 acres of firewood and buffalo-grazing reserve and 16 acres of cemetery and school reserve. Of the land alienated sawah occupies 366 acres made up of 337 lots, rubber covers 360 lots totalling 754 acres, and kampong has 205 lots covering 242 acres.¹ Of the lots that are recorded as uncultivated in the Mukim Register, only 11, with an area of 30.5 acres, remain in that condition, while the fish ponds have all been converted to rubber or sawah.

These figures demonstrate a considerable change in land-use in the Mukim over the last forty years. Rubber, for example, has increased from 551 acres comprising 250 lots to 745 acres made up of 360 lots, mainly at the expense of kampong land.

TABLE 36: HOUSEHOLDS LIVING AND OWNING LAND IN MUKIM BATU HAMPAR

Households owning kampong only	14
Households owning kampong and sawah	78
Households owning kampong and rubber	9
Households owning kampong, sawah and rubber	52
Total number of households owning land (including 38 who share with relatives)	153

OWNERSHIP OF LOTS

Of 338 households in Batu Hampar, only 153 own land in the Mukim (Table 36). Thirty-eight of these share their holdings with sisters or other relatives. Eighty-three other households live on and work the land of female relatives.

TABLE 37: HOUSEHOLDS WORKING OTHER PEOPLES' LAND

Households staying and working on their mothers' land	61
Households staying and working on their grandmothers' land	16
Households staying and working on their mother-in-laws' land	3
Households staying and working on their wives' land	3
Total	83

1. The Mukim Register records 916 agricultural lots made up of 340 sawah lots, 250 rubber lots, 256 kampong and 61 miscellaneous lots. In addition there are 116 lots of uncleared jungle, making a total of 7,032 lots, of which only 916 have been alienated.

Each of those households with any land at all owns at least one kampong lot and all but 14 own sawah or rubber or both as well. Seventy-eight cultivate only padi while 52 have both sawah and rubber. Eleven also keep shops in the Mukim. Seventy-nine households neither own nor work any fields at all. These are school-teachers, shopkeepers, Government servants and others, and also those indigent aged supported by their children or Social Welfare. Another 10 residents in Batu Hampar possess only land in adjacent Mukims. Eighty-six lots, occupying approximately 11% of the registered area, are owned by people living outside the Mukim. Of this the larger portion (181 acres) is rubber land, only 17 lots of sawah being owned by outsiders.

TABLE 38: LAND OWNED BY PERSONS LIVING OUTSIDE MUKIM BATU HAMPAR

MUKIM	LOTS	ACREAGE
TANJONG KLING	9	10.45
CHEMBONG	4	5.30
LUBOK CHINA	2	2.45
MOMPONG	2	6.02
TOTAL	17	24.22

One hundred and seventy acres are worked by their owners and 99 lots totalling 154 acres are worked by joint owners. Parts of 44 lots are cultivated under the *perdua* system (p. 101 below) but it was not possible to determine the acreage of these scattered fragments. Seven of those lots are worked partly by their owners and partly under the *perdua* system.

TABLE 39: MUKIM BATU HAMPAR: OWNERSHIP OF SAWAH

	LOTS	ACREAGE
OWNER-WORKER	177	169.8
OWNED AND WORKED JOINTLY BY MORE THAN ONE PERSON	99	153.8
RENT IN KIND	7	13.8
RENT IN CASH	4	9.0
WORKED UNDER PERDUA	44	53.0
WORKED BY RELATIVES	4	3.7

There are 99 lots under multiple ownership, with each landholder cultivating a share which is usually divided lengthwise. But such divisions are practical only when a lot is shared by not more than two or three owners; the holdings themselves are so small that a fivefold division lengthwise is impossible.

1. Including 11 lots that are partly owner-worked and partly under *perdua*.

TYPES OF OWNERSHIP

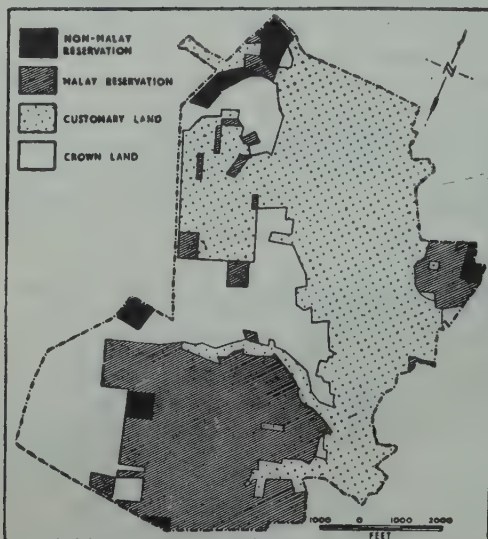


Fig. 47. Mukim Batu Hampar: types of land holding.

Besides the land owned under *adat perpatih* (by which land rights can be held only by the women and inherited by their female descendants), there is the land which the husband and wife possess together purchased out of their common savings. Such land is turned *charian laki bini*. On the occasion of a divorce, the husband or wife can buy up their partner's share or they can still work the land together. When they die the land is inherited by the daughter or failing that, by the wife's family. Such land can become Customary Land if the owners so wish.

Charian bujang is land acquired by a man while a bachelor or widower. His widow from a subsequent marriage cannot inherit such land, which will instead pass to his offspring or to his mother or sisters. The widow, however, can obtain temporary use of it as "brought property."

RENTS

Fifty-five households rent lots in this Mukim. This rent is of three types: namely rents in cash, kind and service. Portions of 4 lots, totalling la 3v. 30p. were rented in cash by 6 households for the total sum of \$150 a season. Rent in cash or kind is known as *per-tiga* and is based on one-third of the value of the yield. These 4 lots are scattered through the flood-plain. Seven households rented portions of 7 lots, amounting

Out of 1,394 acres alienated, 1,341 are land reserved for Malays: 754 acres of this are Customary Land, which includes all the lands of ancient settlement such as the sawah and kampong, (except Kampong Bahru). The steeper slopes of the uplands remained as jungle until the 1920's and 1930's, when a considerable tract was alienated for rubber-planting. Only a portion of the area under rubber is Customary Land and 63 acres of rubber are not even Malay Reservation. Four of these lots, a total of more than 40 acres, are owned by Chinese, two of whom live in Kuala Lumpur (Fig. 48). These lots are the largest of the rubber holdings, one of 12½ acres on the trunk road being the site of the saw-mill; all are situated almost on the periphery of the Mukim.

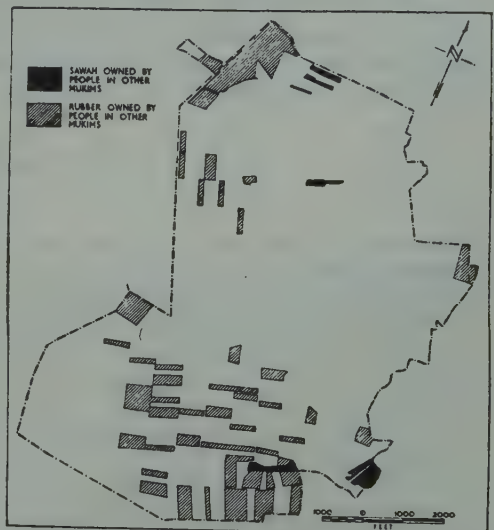


Fig. 48. Mukim Batu Hampar: lots owned by persons living outside the mukim.

to 3a 1v., in kind. In all 270 gantangs of rice were paid to the owners of the lots, which was also about a third of the yield. The owners are also residents and padi-planters in the Mukim.

A rent in service is called *pěrdua* and is a privilege extended only to members of the family or of the same clan or tribe. Forty-four lots were planted under *perdua* in 1954/5 (Fig. 49). In return for labour on the whole lot, the worker is entitled to plant and harvest half the lot, usually lengthwise, each part being called a *jinjang*. The worker and the owner each plants her share with her own seedlings. The agreement is verbal and is only for one season. Not all the 44 lots were planted solely under *perdua*: 11 were worked partly by the owner or owners themselves and partly under *perdua*. In many cases one of the co-owners who is too old to work her share invites a member of the family to plant it for her. The owner then takes half the harvest and the worker receives the other half as payment. At the same time the other owners work and plant their shares themselves.

The 10 lots of rubber owned by people living outside the Mukim but worked by people living inside are also tapped under *perdua*. But here there is a slight difference in that the owner has to supply all the implements and utensils needed. The worker also gets half of the rubber produced.

Those working their grandmothers', mothers' or wives' fields do not pay rent or receive a wage. Neither do they pay rent for the sites of their houses. If an owner goes to live outside the Mukim, she may allow her sisters or other relatives to work her fields. She then receives no rent and can resume work on them at any time by giving the workers a season's notice. Four lots (3.7 acres) were cultivated on such an understanding during the 1954-5 season.

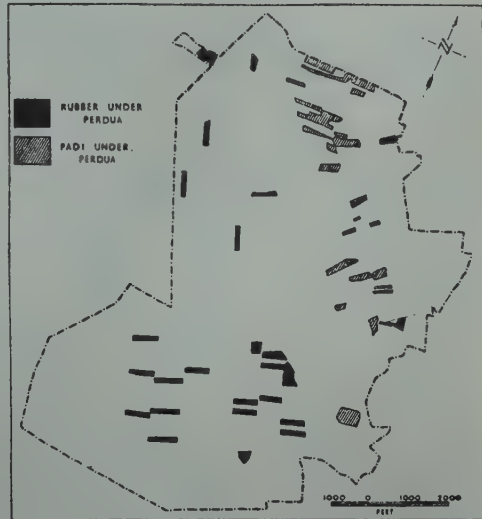


Fig. 49. Mukim Batu Hampar: distribution of lots under *pěrdua*.

CHAPTER VI

COMMUNICATIONS AND SOCIAL ACTIVITIES

COMMUNICATIONS

The trunk road from Singapore to Kuala Lumpur by way of Tampin and Sēremban forms the northern boundary of the Mukim and provides the chief channel of external influence on the lives of local people (Fig. 50). Two cart-

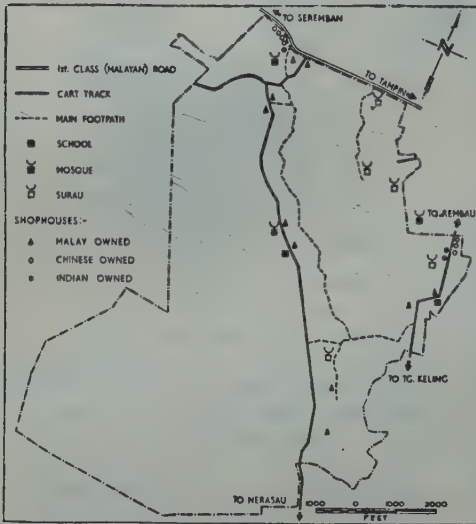


Fig. 50. Mukim Batu Hampar: communications, foci of activity and shops.

tracks, both passable by motor vehicles, run from north to south through the Mukim along the high ground on either side of the kampong belt. In the south-east these are linked by a footpath over the sawah, which crosses the S. Batu Hampar at the Mampong dam. There are also two footpaths along the edges of the flood-plain, which, although they run on the flattened surfaces of the bunds of irrigation canals, can be used by cyclists as well as pedestrians. An intricate network of tracks penetrating into every corner of the kampong is the normal means of communication between houses. Where these cross house-compounds, swing-gates are erected or three posts planted in such a way as to afford passage to pedestrians but not to cattle.

Motor transport is used to bring provisions and building materials into the district and to take rubber to dealers in near-by towns, but within the Mukim the bicycle is the chief means of mechanical transport for padi, latex, sheet-rubber, timber and food. There are 158 bicycles in the Mukim, or one to every two households, and a large carrier is a standard fixture. Even more basic than the bicycle in the subsistence economy of the Mukim is human portorage, both on poles over men's shoulders and on the heads of women. Six cars and four motor-cycles belonged to Government servants living in Kampong Bahru and therefore with easy access to the main road.

The piecemeal nature of the daily movement of farmers from their homes to sawah and rubber lots by way of the kampong footpaths prevented the team undertaking a traffic count. But certain peak periods of movement were observed. For example, between 6 and 7 a.m. the kampong was alive with people setting out for their day's work: farmers going to their sawah, tappers to their rubber lots, office workers to Kampong Bahru and Rembau town and children to school. Between 12 noon and 2 p.m. these people returned to their homes, while there appeared to be a secondary peak when the Government employees returned between four and five in the afternoon. Between these main periods of movement the only folk encountered on the kampong paths were women collecting firewood.

FOCI OF ACTIVITY

Two mosques serve people on the western side of the valley. One serves those in Batu Hampar Sebrang and the other those in Solok. The people living on the eastern side of the valley attend the Rembau Town mosque situated at the outskirts of the Mukim (Fig. 50).

The two schools in the mukim are the Těrantang Malay Girls' School on the eastern side of the valley and the Batu Hampar Malay School on the western side (Fig. 50). The Těrantang Malay Girls' School has 189 pupils, 59 of whom come from Mukim Batu Hampar, 34 from Mukim Chěmbong, and 96 from Mukim Tanjong Kling.

The school, a stilted wooden building with tile roof and a grounded wooden building with concrete floor and roof of zinc sheeting is surrounded by playing fields. The Batu Hampar Malay School, established in 1955 at Batu Hampar Sěbrang, is co-educational for pupils below standard IV. It consists of a grounded wooden structure with cement floor and zinc roof, on 5 acres of land cleared from the buffalo grazing reserve. There are 106 pupils (61 boys and 45 girls), either from Solok or Batu Hampar Sěbrang. Children living at Kampong Tujoh Bělas attend the Malay School at Chěmbong. The Malay School and the Undang Rembau School in Rembau Town also attract pupils from Mukim Batu Hampar.

All the 23 shops in the Mukim are situated beside the roads. There are 7 shops along the main road at Batu 17, 6 along the cart-track leading to Solok and 7 along the cart-track linking Rembau to Tanjong Kling. Locally grown padi supports the average farming family for only 4½ months and for the rest of the year the family subsists on rice bought from shops at Rembau. Apart from some poultry and eggs, all other provisions are obtained from these shops. Fifteen of them are run by Malays, 7 by Chinese and one by an Indian. Terraced buildings house 10 of the shops; the others are in isolated buildings scattered through the kampong. The kampong shops are all run by Malays as Customary Law prevents any other person from penetrating deeper into the Mukim than the first lot beside the trunk road, while Malay Reservation rulings prevent the alienation of land to non-Malays.

HEALTH AND WATER SUPPLY

Health

There is no record of health conditions in the Mukim. The dispensary at Rembau treats minor diseases but does not list patients from Batu Hampar separately. Yaws, scabies and boils are the commonest skin diseases among children below twelve. Malnutrition is common in the Mukim and malaria not infrequent. There is a high infantile mortality, with convulsions taking heaviest toll, but two Government mid-wives visit the kampongs regularly to advise mothers on child-care and ante-natal treatment.

Sewage Disposal

Sungei Chěmbong and the smaller streams are used for sewage disposal, a practice less objectionable than might be supposed as the streams are permanently flowing. In areas remote from Sungei Chěmbong, such as Tanjong Sena, irrigation ditches are used for the same purpose, but when the ditches are dry pit-lavatories are dug. In Kampong Bahru pit- or bucket-lavatories are used as stipulated by the Town Board.

Domestic Water Supply.

Apart from the households at Kampong Bahru and along the trunk road where stand-pipes are provided, and apart from those at Tanjong Sena and Solok who still use Sungei Batu Hampar for bathing and washing, the inhabitants of the Mukim rely on wells beside streams. Houses on the upper slopes also obtain their water from these wells. There are 69 wells in the Mukim (Fig. 51), giving an average of one well to every five houses. Forty-seven of the wells are more than 10ft. deep and half these are in Kampong Bahru. Some of the wells are double-wells with each having a different depth and thereby containing water of different purity. The clearer water from the deeper well is used for drinking and cooking whereas that from the shallower one is for washing. No explanation was given for this arrangement and neither was any satisfactory reason advanced for maintaining the shallow one. Three pipelines have been laid recently to supply piped water to Kampong Bahru, Kampong Batu Hampar and Batu Tujoh Bēlas, but in August 1955 stand-pipes had not been installed. The people of Tanjong Sena and Solok still use Sungei Batu Hampar for bathing and washing.

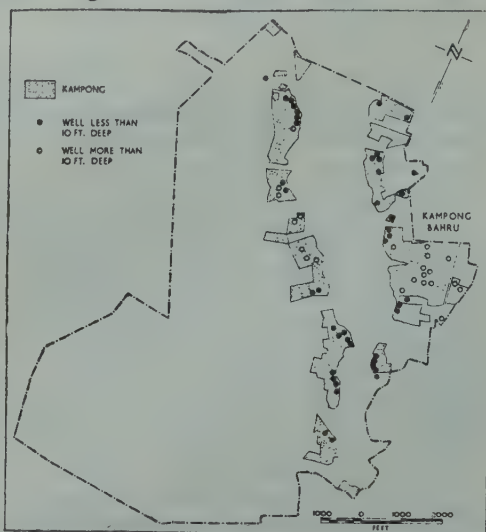


Fig. 51. Mukim Batu Hampar: distribution of wells. Note the group of deeper wells in Kampong Bahru.

PART IV
MUKIM BALAI PANJANG
MALACCA

CHAPTER I

THE LAND

The fourth locality chosen for study was the southern part of Malaya's western coastal plain in Mukim Balai Panjang.



Fig. 52. The position of Mukim Balai Panjang in Malacca State.

feet above S.L. is found in the north-west near Sungei Malim, and a more extensive area over ten feet above sea-level towards the south-east, but the chief features diversifying the relief are the bunds of the canals, which may be up to four feet in height, and patches of kampong land rising island-like amid the sawah.

The eastern half of the Mukim is drained by the Malacca River, the western by the Sungei Sri Malaka. The dotted line on Fig. 54 marks the watershed between these two catchment areas. The Malacca River is subject to great variations in flow.

This is an elongated area of irregular shape situated some two miles north-west of Malacca town and about half a mile inland (Fig. 52). It is not a geographical unit for its largely undiversified landscape continues far beyond the Mukim limits. Only about a third of its perimeter is marked by natural features. In the west the canalized Sungei Sri Malaka separates Balai Panjang from Mukim Klebang Besar; Sungei Malim shapes the northern boundary for a distance of a mile, and in the east the broad, shallow Malacca River forms a natural boundary between Balai Panjang and Pringgit Mukim. The remaining boundaries are arbitrary lines.

Mukim Balai Panjang is an area of very gentle gradients with no part of the land more than twelve feet above sea level (Fig. 53). A small tract of higher terrain up to nine

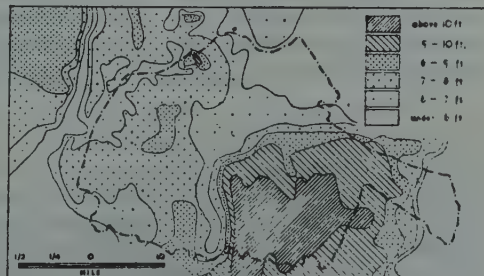


Fig. 53. Mukim Balai Panjang: relief.

Between 1950 and 1954 the maximum flood level at Batu Bërendam Road bridge was $+10.1$ (Reduced Level Trig. Datum) with a total discharge of 7,784 cusecs passing under the bridge, through the culverts and over the road. The minimum water-level recorded during the same period was $+1.1$ with a river flow of only 160 cusecs. S. Sri Malaka is a canalized stream with a dam at G while S. Malim was also canalized in 1947, with a control at Q (Fig. 54).

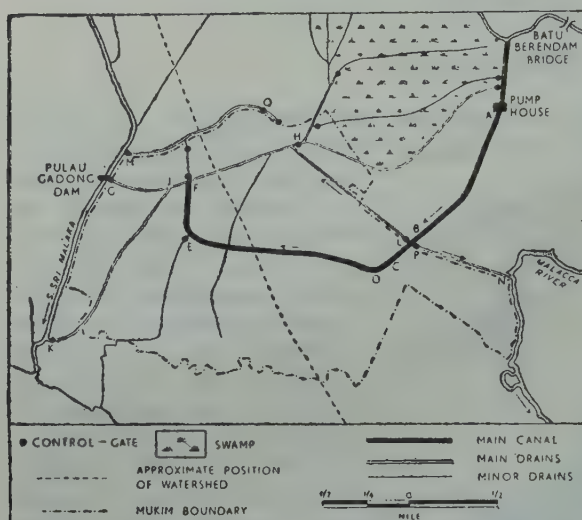


Fig. 54. Mukim Balai Panjang: drainage and irrigation channels.

River and the low, swampy area in Bachang. A pump-house located one mile north-west of Tambak (A in Fig. 54) serves the dual purpose of draining the swamp and irrigating the high sawah of Balai Panjang. From this point the main irrigation canal is carried over low ground on an embankment and enters the Mukim at Tambak (B). The Full Surface Level of this canal is generally designed to maintain a depth of from 12 to 18 in. of water in the sawah. The minimum depth is from 6 to 12 in. depending on the varieties of padi grown. The eastern stretch of this canal (A-C) was constructed in 1942, but the western extension (C-D-E-F) was not completed until 1949. By impounding the waters of Sungei Sri Malaka and thus maintaining the level of the water-table in adjoining sawah, the needle shutters of the Pulau Gadong dam (G) materially assist in the irrigation of the western sawah.

Owing to silting in the Malacca River, drainage during the wet season is effected through various drains which eventually lead into the main drain (H-J-K), constructed in 1933. In the following year the north-eastern sector of the Mukim was furnished with the drain labelled H-L, while the extreme east drained into the Malacca River by way of the outlet P-N. The completion in 1939 of the section J-G further reduced the risk of floods. Yet despite these efforts, the whole of the sawah of Balai Panjang was flooded twice between 1950 and 1954, once in January 1952 and again in December 1954.

The dams and controls are in the charge of the Irrigation Inspector, who is assisted by overseers and gate-watchmen. The main water-gates are opened when water in the principal irrigation canals reaches the 10-ft. level or when requested by the farmers. The classification of water-rates depends on the yield of land gazetted as being under irrigation and, generally speaking, the sawahs of Balai Panjang fall within the 'B' category, that is, they are subject to a water-rate of M\$4 per acre. The imposition and collection of this water-rate is the responsibility of the District Officer.

The Drainage and Irrigation Department claim that the water supplied by their canals is adequate for all the sawah in the Mukim, but the farmers of fields remote from the main irrigation canals say that they experience a shortage of water during the ploughing and planting seasons. While not denying this fact, which is evident to even a casual observer, the Drainage and Irrigation authorities comment that farmers neglect their drains and fail to co-operate in the flooding of adjacent fields and thereby prevent the irrigation water reaching all parts of the Mukim. To remedy this deficiency eleven water-wheels and two motor-pumps are used to draw up water from ditches and ponds (Fig. 55) while other farmers scoop up water with the aid of buckets slung on hand ropes.

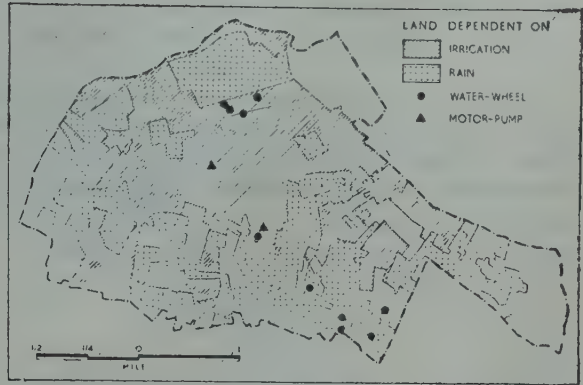


Fig. 55. Mukim-Balai Panjang: sources of water.

The annual rainfall of 92 in. is well distributed throughout the year so that it is unusual for any month to receive less than 3 in. The wettest period is from July to October when rain-bearing *Sumatras* are frequent in this part of Malaya. Temperature averages within a degree or two of 80°F for all months of the year. The diurnal range, however, may be as great as 14°F at times. The mean monthly humidity seldom rises above 86% or falls below 80%.

No pedological survey has yet been undertaken in Mukim Balai Panjang, but it is evident to eye and hand that all the soils are clays. However, there is considerable variation in colour. Deep, dark soils distributed widely in the area east of Pokok Mangga road are reported to be of high fertility, but bake hard and crack badly during the dry season. Despite the greater friability of soils in Kampong Pulau Mědang, farmers reported poor yields. Vegetable farming has been particularly unsuccessful in that area. Elsewhere the intensive working and fertilizing of the land associated with vegetable cultivation during the off-season has changed the original character of the soils, which now usually show a thick, dark A horizon. A soil profile from the Heng Fatt-yew brickworks in Kampong Pěrigi Batu, for example, shows 18 in. of dark top-soil over 10 ft. of grey clay.

The landscape of today bears little trace of its former covering of natural vegetation. Older residents claim to remember that the Mukim was formerly a mangrove and *gělam* swamp, but now only *sukudana* (*Nasturtium heterophyllum*), *měnděrong* (*Scirpus grossus*), *měngkuang* (*Pandanus* spp.) and coarse grasses remain in isolated spots.

CHAPTER II

THE PEOPLE

From a house-to-house count the population of Balai Panjang was found to be 3,366 in an area of 2.1 sq. miles (1,332 acres), giving an average density of 1,603 persons per sq. mile. This simple density is, however, misleading, for the people are not evenly distributed throughout the Mukim (Fig. 56). Population is concentrated in three nucleations:

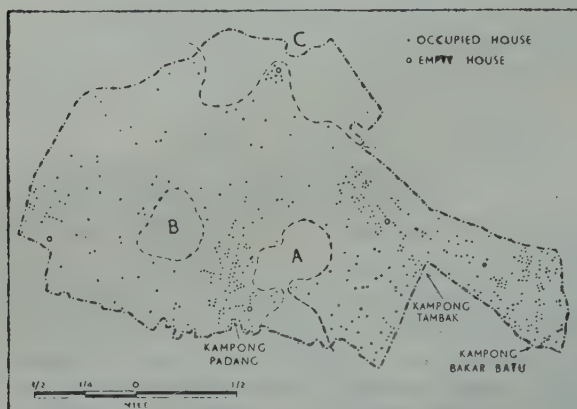


Fig. 56. Mukim Balai Panjang: distribution of houses.

- (i) Kampong Padang is a nucleated settlement showing a tendency to linear extension along the Pokok Mangga road which bisects it.
- (ii) Kampong Tambak is a linear settlement strung along the main road from Malacca to Seremban. The inhabitants of both these villages are mainly padi-farmers whose houses are sited close to the sawah.

- (iii) Kampong Bakar Batu, on the other hand, has a population employed mainly in factory work or in labouring in Malacca town. The house density is higher and house-sites are largely unrelated to padi-fields. Over the rest of the Mukim houses—mainly Chinese—are scattered fairly evenly in a dispersed pattern. There are, however, three localities where houses are notably absent (Fig. 56). A and B are regions of small lots worked by farmers living on the larger holdings surrounding them, while C is a region of excessively large lots which remain unworked owing to the infertility of the soil.

TABLE 40: ETHNIC COMPOSITION OF THE POPULATION

RACE	MALE	FEMALE	CHILDREN UNDER 12 YEARS	TOTAL	PERCENTAGE
CHINESE	498	490	760	1,748	52
MALAYS	389	454	735	1,578	48
INDIANS	7	6	15	28	0.4
ARABS	1	1	4	6	0.1
PAKISTANIS	1	1	1	3	—
CEYLONESE	1	1	0	2	—
EURASIANS	1	0	0	1	—
TOTAL	898	953	1,515	3,366	100.0

ETHNIC COMPOSITION

Chinese

Of a total population of 3,366, 51.9 per cent (1,748) are Chinese; 47.5 per cent are Malays and the remaining 0.6 per cent of the population consists of Indians, Arabs, Pakistanis, Ceylonese and Eurasians.



Fig. 57. Mukim Balai Panjang: typical settlement patterns. A. Kampong Padang, a nucleated settlement showing a tendency to linear extension along the Pokok Mangga road. B. Kampong Tambak, a linear village bordering the main road from Malacca to Seremban. C. Kampong Bakar Batu, a suburban village most of whose inhabitants are engaged in work other than farming. D. Dispersed pattern of Chinese farms on large lots to the west of the Pokok Mangga road.

Despite the fact that all the 1,748 Chinese are of South China origin, no less than five dialects are spoken among them. Tiechius predominate numerically, accounting for 32% of all Chinese in the Mukim while Khehs form the smallest group, (11.5%). The other dialectal groups represented are Hokkiens (27%), Cantonese (17%) and Hainanese (12%).

TABLE 41: COMPOSITION OF THE CHINESE POPULATION BY DIALECTS

DIALECT	MALE	FEMALE	CHILDREN UNDER 12 YEARS	TOTAL	PERCENTAGE
TIECHIU	165	152	249	566	32
HOKKIEN	137	128	203	468	27
CANTONESE	82	89	130	301	18
HAINANESE	59	58	95	212	12
KHEH	55	63	83	201	11
TOTAL	498	490	760	1,748	100

Table 2 shows that among Cantonese and Khehs, females outnumber the males, while among the other groups it is the reverse. Of the total Chinese population, 43% consists of children under the age of twelve.

Not all the Chinese belong to the same religion. Of a total of 236 Chinese families, 182 are animists, 38 are Catholics, 15 Buddhists and the remaining one a Methodist. Of the 38 Catholics, 36 are Tiechius and the other 2 are Khehs. None of the Tiechius are Buddhist whereas animists are found in all the five Chinese dialectal groups.

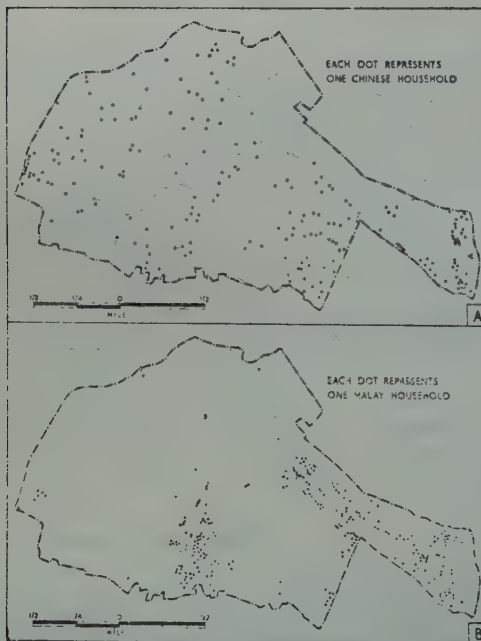


Fig. 58. Mukim Balai Panjang: A. Distribution of Chinese households. B. Distribution of Malay households.

Malays

There are 292 Malay households in Balai Panjang, of which 94% claim to be Malacca Malays. The remaining 6% (12 families) are immigrant Malays.

The sex ratio of the Malay population is unequal owing chiefly to the emigration of many of the younger men to work in other parts of Malaya. There are 65 more female than male adults out of a total Malay population of 843. There are 735 children under the age of twelve. Every Malay is a Muslim.

The category of 'others' is only 40 in number, including 10 Indian families, 1 Arab family, 1 Ceylonese family and 1 Eurasian family. All, except the Ceylonese, are Muslims who, having married women of the Mukim, have adopted the way of life of Malacca Malays.

ETHNIC DISTRIBUTION

The main racial communities of Balai Panjang have settled in a distinctive pattern. The map of Chinese households (Fig. 58A) depicts a fairly uniform distribution throughout the Mukim with a somewhat higher density in Kampong Bakar Batu, but the several dialectal groups which combine to form this pattern are by no means evenly distributed. Three of these, Cantonese, Tiechius and Khehs are composed mainly of padi-farmers. The Cantonese homesteads are chiefly in

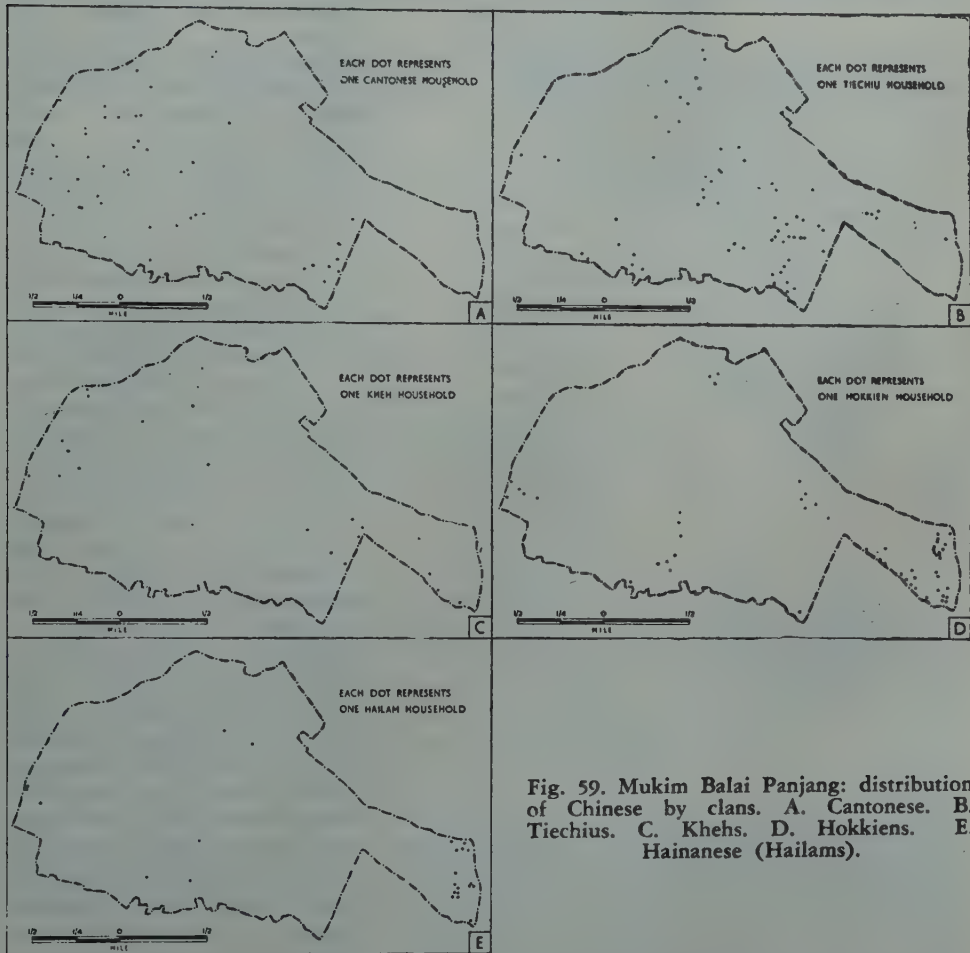


Fig. 59. Mukim Balai Panjang: distribution of Chinese by clans. A. Cantonese. B. Tiechius. C. Khehs. D. Hokkiens. E. Hainanese (Hailams).

the western half of the Mukim with a group of nine households in the south-eastern corner (Fig. 59A). The Tiechius, on the other hand, show a marked preference for the eastern half of the Mukim (Fig. 59B) while the small number of Khehs in the Mukim are found either in the extreme west or the south-east (Fig. 59C). Each family, depending wholly on its land for its subsistence, requires from 2-6 acres so that the houses are almost invariably isolated. The Hokkien community, in contrast, is composed mainly of sundry-shop keepers, so that they are spread, like their businesses, along the roads of the Mukim (Fig. 59D), and notably in Kampong Bakar Batu. This last environment also appeals strongly to the Hainanese (Hailams) who specialize as coffee-shop proprietors (Fig. 59E).

Fig. 58B shows that the Malays are almost exclusively village-dwellers concentrated in Kampongs Padang, Tambak and Bakar Batu. These were the original nuclei of settlement from which cultivation began, so that when the Chinese immigrants arrived comparatively recently all the padi-land in the

vicinity had been pre-empted by Malays. Almost the only Chinese to settle in the villages were the few Hokkien and Hainanese shop-keepers. Cantonese and Tiechiu padi farmers had to seek land at some distance from the settlement. A contributory factor to the preservation of racial purity in the predominantly Malay kampongs of Padang and Tambak is the Muslim inheritance law whereby land lots are subdivided among sons and daughters. This practice has encouraged the children of householders to build houses on what were originally the undivided lots of their parents, sometimes during the lifetime of the latter. This makes for a high house density in Padang and Tambak, and also reduces the likelihood of land being available for Chinese settlers near the village. Even where a Malay rents land to a Chinese, he lets those lots farthest from his house. In Kampong Bakar Batu, a settlement of non-padi growers where the Malays do not usually own the lots on which they live, Hainanese and Hokkien immigrants, attracted by the suburban character of the village, have settled in numbers equal to those of the Malays.

Those groups described as "Others" are all village dwellers with no stake in the soil.

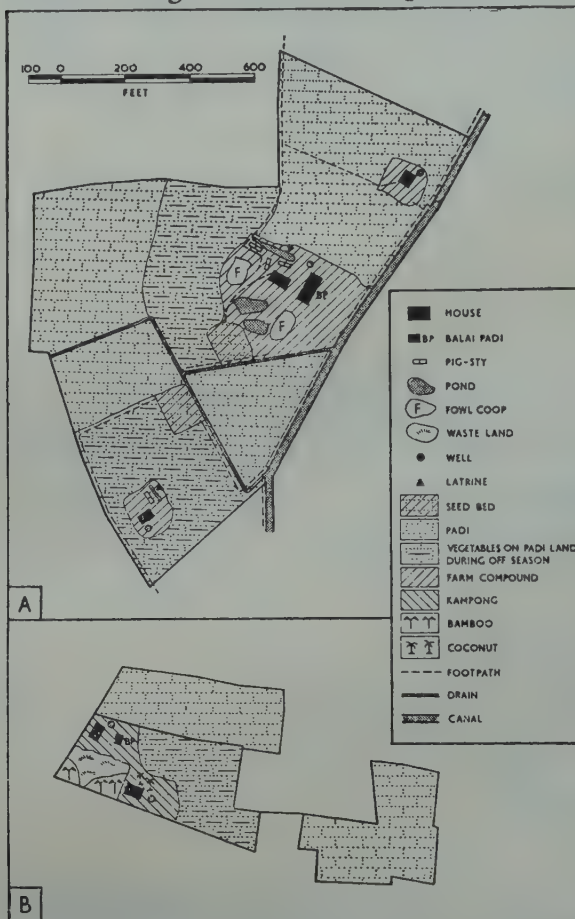


Fig. 60 Mukim Balai Panjang: typical farm patterns. A. Three Chinese farms in Kampong Padang. Note (i) the leafy vegetables grown commercially on two of the Chinese farms illustrated during the off-season of the padi cycle instead of the roots and chillies of the Malay farm; (ii) the pig-sty and chicken coop on the Chinese farm. Islam prohibits pig-rearing and the fowls on Malay farms usually roost under the house; (iii) ponds with water-hyacinth (*Eichhornia crassipes*) and with pig-sties and latrines at their edges on two of the Chinese farms; (iv) waste land and bamboo on the Malay farm, reflecting a less intensive use of the land.

POPULATION DYNAMICS

The Census for 1947 recorded a population of 2,935 in Mukim Balai Panjang.¹ In 1953 a count by the Pēnghulu showed an increase of 12% to 3,271,

1. M. V. del Tufo, *A report on the 1947 census of population* (London, 1949), p. 139.

while a house-to-house enquiry by the University team in August 1955 elicited a total of 3,366 persons, that is, an overall increase of nearly 15% above the figures for 1947. But this increase has not taken place equally in the two main racial groups. While the Chinese community has been augmented by 308 or 21% (1947, 1,440; 1953, 1,484; 1955, 1,748) the Malays have increased by a net total from 1,448 to 1,578, or by just less than 9% over the last eight years. Currently, however, they seem to be decreasing in numbers. Their peak figure was 1,772 in 1953, so that during the past two years there has been a decrease of slightly over 10%.

Only 45 out of a total of 236 Chinese families claim to have been born in Balai Panjang. Two hundred and ten families have been living in the Mukim for twenty years or less and 88 for 10 years or less.

TABLE 42: LENGTH OF RESIDENCE OF HOUSEHOLDS IN MUKIM BALAI PANJANG

Period of Residence (years)	Chinese	Malays	Indians	Eurasians
0 - 10	88	43	8	—
11 - 20	74	37	2	—
21 - 30	48	64	3	1
31 - 40	16	62	—	—
41 - 50	5	45	—	—
51 - 60	1	23	—	—
60 and over	4	10	—	—

Although all the Chinese at present living in Balai Panjang were originally immigrants from South China, most had been settled in Malaya for some time before moving into the Mukim. Only 25 families have migrated directly from China while 140 have come from elsewhere in Malacca State. Ten have migrated from Johore State and 16 from other parts of Malaya. Immigration reached its peak during the Japanese occupation when the land laws were less strictly observed and when a general shortage of food was attracting people to the land. Many of these immigrants have remained until the present. The earlier immigrants introduced into the Mukim the practice of planting vegetables during the padi off-season. Their success attracted numbers of Cantonese, who are considered experts in this type of cultivation, which they frequently combine with pig-rearing. The profit in this integrated enterprise then attracted Tiechius, who specialize in pig-breeding.

Replies from the Malays indicated that there were only 17 immigrant families, 5 of whom were from Johore State and the rest from places as far afield as Singapore Island, Nēgri Sēmbilan, Sēlangor, Perak and Indonesia.

HOUSE TYPES

Each of the two main communities in Mukim Balai Panjang favours a particular type of house.

(i) Every Chinese house stands directly on the ground, with a slightly raised floor of beaten earth, or perhaps cement in the case of the more prosperous

farmers. The main hall and its adjoining rooms are all under one roof, while the kitchen is attached under a smaller roof to one side.

(ii) All Malay houses are erected on wooden stilts set on 'elephant feet' of concrete, granite or wood. Malay tradition and protection from snakes, dampness and flooding were the reasons advanced by the farmers for raising their homes above the ground, but equally important are the derivative advantages of improved ventilation and storage space for bicycles, trishaws and farm implements. In addition it is not uncommon for poultry to use the cross-beams below the house as perches.

The Indians and other groups also build stilted houses which differ but little from those of the Malays. The count showed that there are 308 stilted houses and 236 grounded in the Mukim.

Atap, planking, tiles, zinc-sheeting and cement are all used in house construction, the precise role of each depending to a large extent on the resources of the occupant. The zinc-sheeting and cement are imported from overseas, planks are obtained from saw-mills in Balai Panjang and adjoining mukims, and atap from neighbouring districts of swampy terrain. Two types of atap are available, made respectively from rembia and nipah. The latter, although shorter in leaf-span and less durable, is nevertheless more commonly used on account of its cheapness. Even when a roof is of zinc sheeting, atap is fitted over it on the side most exposed to the sun in order to reduce the heat in the rooms below. This type of roof is more lasting than atap alone, but less so than tiles. Few of the farmers or labourers, however, can afford these so that only 13 houses are roofed in this way in the whole of the Mukim, against 466 of atap and a further 64 partly of atap and partly of zinc-sheeting.

CHAPTER III

PADI

Padi is grown by only 257 of the 541 households (48%) in Mukim Balai Panjang (Table 43), of which 133 are Chinese and 124 Malays (Fig. 61).

TABLE 43: HOUSEHOLDS ENGAGED PRIMARILY IN PLANTING OF PADI

COMMUNITY	NUMBER	PERCENTAGE OF ALL HOUSEHOLDS IN THE MUKIM
MALAYS	124	42
CHINESE	133	56
TOTAL	257	47

According to the 1955 survey, correlated with acreages recorded on the lot map, 955 out of 1,331 acres (or 77% of the total land area of the Mukim) are under padi.¹

TABLE 44: LAND USE IN MUKIM BALAI PANJANG.

LAND USE	ACREAGE	PERCENTAGE OF TOTAL MUKIM ACREAGE
PADI	955	72.0
KAMPONG	262	20.0
BUILDING SITES	24	2.0
TANAH WAKAF	3	0.2
VEGETABLES (ALL THE YEAR ROUND)	9	0.7
RUBBER	4	0.3
ORANGE ORCHARD	9	0.7
WASTE LAND	65	5.0

The 40 acres of "waste land" in the north-east of the Mukim were formerly under padi but have lapsed out of cultivation because of poor returns and the fact that few farmers can afford the deposit required before a Temporary Occupation Licence is granted. Only one crop of padi is taken each year but 183 acres carry a catch crop of vegetables during the padi off-season (p.— below).

The strain of padi commonly planted in the Mukim is the *nachin puteh* which matures in six months, but when planting is delayed four-month *Radin siak* is used.

CYCLE OF ACTIVITY

The padi season extends over seven months, the exact time required for a particular crop depending on the strain of padi chosen. To help the farmer obtain maximum production the dates of certain activities are fixed officially by

1. Official statistics supplied by the Department of Agriculture give the acreage under padi as 1,440, a figure which exceeds the total land area of the Mukim as calculated from the lot map (4 chains to the inch).

the pēnghulu and the District Officer, acting on the advice of the Chief Agricultural Officer. The dates, announced in the mosque after Friday prayers, are observed by the great majority of the Malays, but the Chinese farmers often prefer to regulate their activities according to their own judgment.

TABLE 45: OFFICIAL DATES FOR PADI ACTIVITIES, 1955-6

Repair of waterways and bunds	10th June to 10th July
Seeding and ploughing	10th July to 10th August
Transplanting	10th August to 30th September.

FIELD PROCESSES

The preparation of fields for padi-planting begins in June, when the bunds separating the plots are repaired and drains are cleared and dug: all irrigation canals are closed on June 1st each year in order to flood the sawahs.

Seeding

In June the farmer prepares a plot of land as a seed-bed. The average seed-bed is about 30 ft. by 10 ft. but varies with the size of the plots it is intended to serve. The farmer usually selects a plot in the most productive field adjacent to his homestead so that distance does not prevent him from taking proper care of the seedlings. Where there is a likelihood of poultry or buffalo destroying seedlings the plot is enclosed by a strand of barbed wire. At the end of the fallow season the sawah is baked hard and has to be flooded for two or three days before the surface is softened sufficiently for the buffalo to draw the plough. The seed-bed is worked into a condition of soft mud to a depth of four or five inches to allow the seedlings to take root easily.

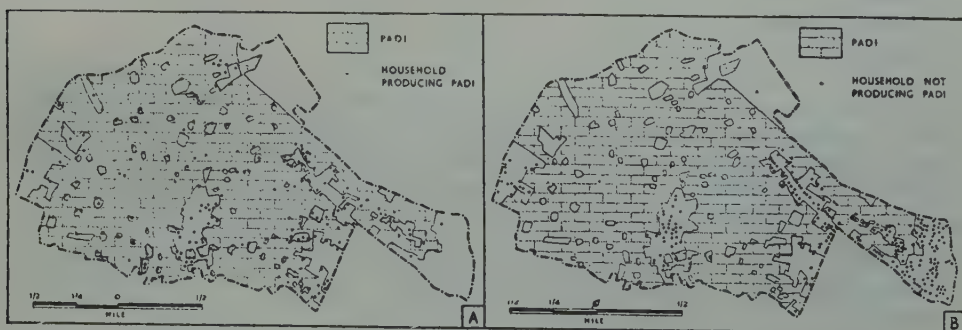


Fig. 61. Mukim Balai Panjang: padi-land and padi-growing households. A. Malay and Chinese households producing padi. B. Malay and Chinese households not producing padi.

Before sowing the seeds are steeped in water for twenty-four hours after which they are watered for a further one or two days to encourage germination. As soon as the roots sprout, the seeds are broadcast over the beds at the rate of 5 gantangs per acre. Two or three inches of water are maintained over the bed to protect the seeds from birds until the seedlings are two or three inches high, when the bed is drained. The seedlings are then left to grow in the nurseries

for from forty to forty-five days, during which time the farmer ploughs and harrows the rest of his fields.

Field Preparation

Fields are ploughed and harrowed with the aid of buffalo. Malays plough the sawah two or three times and usually harrow the field after each ploughing to smooth out the furrows, break up clods and generally improve the friability of the soil. The Chinese plough the land three or four times and also harrow after each ploughing. The precise number of times a field is harrowed depends on the personal industry of each farmer. When vegetables have been planted during the off-season, the land is ploughed only once, as the constant tilling necessary for vegetable cultivation maintains the soil in good heart.

Transplanting

Before the young padi plants are transferred from the nursery to the fields, water is let into the seed-bed for one night so that the seedlings may be pulled out without damage to the roots. When it is not possible to transplant all the seedlings in one day the water is drained out of the nurseries to prevent the roots penetrating too deeply. From the seed-bed the young padi plants are carried into the field in neat bundles called *unting*, each containing approximately 100 plants. The women, who alone engage in transplanting, insert from three to five plants at points some twelve inches apart. Although the farmers have been advised by the Department of Agriculture that one plant at each planting-point develops tillers and yields as much as several seedlings thrust into the soil close together, they continue to insert from three to five plants at each point, thus stifling tillers which would otherwise develop.

Between transplanting and harvesting, the farmer keeps his field clean-weeded and ensures that there is sufficient water in his sawah. This is also the time when pests are dealt with. Special care is given to the padi plant when it begins to flower for rats and beetles can then do a great deal of damage by destroying the buds and the "sweet" insides of the stalk. At this flowering period, the farmer watches the irrigation of his sawah with particular care because shortage of water then leads to crop failure.

Harvesting

Approximately five months after transplanting the padi ears are harvested with a sickle (*sisak*), the whole plant being cut about six inches from the ground. Men, women and children help in this operation. Immediately after harvesting the padi ears are threshed by banging against the edge of a box, called the *tong banting*, set up in the field. Winnowing and milling are always done at home by the womenfolk when required.

Small landholders work their own sawahs without help from outside the family, but those with larger acreages hire extra labour for transplanting and harvesting. The need for such help is acute during transplanting which has to be done quickly, a farmer usually reckoning to complete this operation in half a day. Harvesting, on the other hand, may last for a week. During the 1954-55 season, 3,071 helpers were hired from elsewhere in the Settlement. Such hired labour is paid from \$1.00 to \$1.50 a day, to pay which the farmer must sell part of his crop.

Yields

The results of the field-by-field enquiry show that in the 1954/5 season a total of 869 acres actually cultivated in Balai Panjang yielded 196,732 gantangs of padi, so that the average yield per acre was 226 gantangs. The reported yields by lots for the season 1954-5 are plotted on Fig. 62. A total of 23 lots yielded more than 400 gantangs per acre, eighteen of which were cultivated by Chinese farmers. The main reason for this higher yield obtained by the Chinese is that commercial vegetable farming during the off-season contributes to an increase in soil fertility (cp. pp. 124-6).

Only the part officially classified as irrigated is subject to a productivity classification. This section is all classified as Class 'B' land, that is, sawah capable of yielding 200-400 gantangs of padi per acre. A comparison of Figs. 62A and 62B shows that by no means all lots classified as capable of yielding 200-400 gantangs did in fact produce that amount in 1954/5.

The official figures for the average total production of padi in Mukim Balai Panjang, supplied by the Department of Agriculture (Table 47 below), are substantially higher than those obtained by the team for the year ending March 1955. This is attributable to the fact that the official figures are calculated for a bigger but erroneous acreage (p. 117 above). This discrepancy between the yield per acre calculated by the Agricultural Department from test plots and that obtained by the team is probably the result of the floods which reduced yields over much of the Mukim in 1955.



Fig. 62. Mukim Balai Panjang: A. padi yields for 1954/5. Unshaded lots have no padi cultivation. B. Land officially within the 'B' category.

TABLE 46: MUKIM BALAI PANJANG: LOT YIELDS PER ACRE

REPORTED YIELD PER ACRE IN GANTANGS	NUMBER OF LOTS	PERCENTAGE OF TOTAL LOTS IN MUKIM
OVER 400	22	4
BETWEEN 200-400	201	36
LESS THAN 200	72	11
TOTAL	295	51

On closer inspection it is clear that in the 1954/5 season the section bordered by Pokok Mangga Road, Malim Road and Lorong Pandan produced a higher than average yield per acre (Fig. 62A). Although this area is relatively high and it might be thought that irrigation of the sawah would present a problem, the farmers have managed to provide sufficient water for their padi plants by means of water-wheels and manual devices (Fig. 55). Moreover, its greater elevation protected this area from the floods of early 1955.

TABLE 47: OFFICIAL AVERAGE PADI YIELDS

LOCALITY	TOTAL ACREAGE	ACREAGE PLANTED	ACREAGE HARVESTED	YIELD PER ACRE (GANTANGS)
PULAU MEDANG	690	690	660	280
TAMBAK	400	400	370	260
BAKAR BATU	180	180	180	340
PERIGI BATU	170	170	170	300
TOTAL	1,440	1,440	1,380	295

TOTAL OFFICIAL PRODUCTION OF MUKIM = 393,200 GANTANGS.

FERTILIZERS

The padi farmers of Mukim Balai Panjang do not use chemical fertilizers but make use of such manures as are easily obtainable locally. For example, farmers in the west of the Mukim which is close to the sea, use a saline mud from the shore. The mud, mixed with a little water, is stirred into a viscous fluid to which are added burnt bones. The roots of the padi-plants are immersed in this mixture and then left to dry for two days before being planted out. Two pikuls of bones, mixed with 10 pikuls of mud, are sufficient for 4 acres. Local farmers maintain that the saline mud counteracts soil sourness and provides the plants with soil nutrients, but agricultural officials point out that its application merely stimulates leafy growth and does not increase the yield. The farmers' claim that the mud helps to bind the seedlings together and weights them down after transplanting into the flooded fields is better founded. The mud is obtained from the sea-shore free of charge, so that the only outlay required of farmers using it is an average of \$10 a season for the hire of a bullock-cart. The bones which are mixed with the mud are mainly from the skeletons of slaughtered cattle and buffalo. These are sold in two qualities: leg bones at \$13 a pikul and other bones at \$10 a pikul. Occasionally farmers will use wood-ash as a fertilizer for their padi seedlings.

During the 1954-5 season, 395 pikuls of bones and 735 pikuls of mud were used by the farmers of Balai Panjang. Those Chinese who grow vegetables during the off-season apply fertilizer only to the vegetables. During the padi season the soil is still benefitting from these applications and has also been enriched by the growth of nitrogenous vegetables.

In 1954 the Agricultural Department initiated a series of two-year manurial trials with the aim of ultimately persuading local farmers to use chemical fertilizers, but to date results are not available.

PESTS

The commonest pests are rats and birds. Nearly every farmer interviewed complained of damage done by rats, those working fields in the north of the

Mukim where there are large tracts of uncultivated land suffering most severely, for the bushes and *sukudana* grasses make excellent breeding grounds for rats. Many farmers believe that these pests should not be checked lest in revenge more rats should infest the fields. Some, particularly Malays, believe that even to speak disrespectfully of the rats would bring a plague. The Agricultural Department supplies through the pēnghulu zinc phosphide as a pesticide, but even those farmers to some extent emancipated from superstition do not make full use of this source of supply because the poison not only kills rats but is also a source of danger to poultry. Other planters have become disheartened and abandoned its use when the rats have shown no signs of decreasing in number. During the off-season, the Department of Agriculture organizes rat drives during which cynogas is pumped into rat holes in the bunds.

Java sparrows (*Pipit padi*) cause a great deal of damage to ripening seeds. At that time scarecrows are erected and farmers can occasionally be heard shouting to drive away the birds. On one occasion a boy was found sitting on a raised wooden platform in the middle of the field chasing away birds with the aid of a catapult and mud pellets.

Army worms (*Spodoptera mauritia*) and the black padi-bugs (*Scotinophara coarctata*) are also causes of damage to crops. *Spodoptera mauritia* attacks padi seedlings up to twenty days old while *Scotinophara coarctata* sucks sap from the stems as a result of which panicles do not develop. Farmers also reported the destruction of crops by an insect called locally *pianggang* (*Leptocorisa acuta*)

TABLE 48: PREVIOUS OCCUPATIONS OF PADI-PLANTERS

Occupation	Malays	Chinese
Vegetable farming	—	17
Lorry-driving and cleaning	13	1
Mechanic	1	—
Fishermen	3	1
Bus conductors	4	—
Wood-cutting	1	—
Labourers	2	7
Fruit and vegetable selling	1	4
Trishaw riding	2	—
Carpenter	1	1
Butchers	2	—
Policemen and prison warders	3	—
Basket-making	1	—
Bullock-cart driving	1	1
Sailor	1	—
Cattle-dealing	1	—
Rubber-tapping	—	4
Goldsmith	—	2
Shopkeeping	—	2
Tailoring	—	1
Hawking	—	1
Pineapple planting	—	1
Odd jobbing	8	7
Total	45	50

which sucks the milk-ripe grain, leaving only the seed coat. Nothing is done to check the damage done by these pests.

PULUT PLANTING

A total of 17 acres was reported under pulut cultivation, yielding 5,224 gantangs. Practically every farmer plants a small plot with glutinous rice together with his yearly padi crop. Apart from two Chinese farmers who were found growing only pulut for sale instead of padi, those who plant pulut use it themselves for festival cakes.

The pulut cycle parallels that for padi. The field processes are similar to those in padi cultivation and seeding and transplanting times are coincident. The harvest is approximately one month earlier than for padi.

PLANTERS

Of the 257 households engaged primarily in padi planting, the heads of 95 (45 Malays and 50 Chinese) were previously in other work (Table 48).

CHAPTER IV

OTHER AGRICULTURAL ACTIVITIES

VEGETABLE PRODUCTION

Although the land-use map of Balai Panjang emphasizes the dominance of padi in the agricultural landscape, it also conceals the importance of vegetable gardening which takes place on padi-land during the off-season. The area under vegetables and root-crops during the off-season of 1955 was 183 acres (Fig. 63), producing some 3,240 pikuls of vegetables and 183 pikuls of tubers. This cultivation is practised by a total of 132 families in the Mukim, of which 19

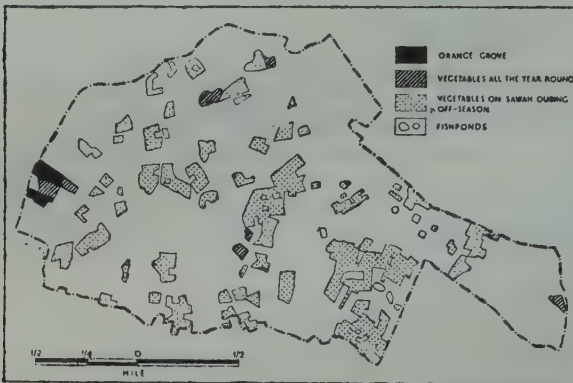


Fig. 63. Mukim Balai Panjang: vegetable production, fishponds and orange groves.

(6.5%) are Malay and 113 (47.8%) Chinese. Yet the difference between the farming practice of these two groups is not merely one of numbers, for whereas the Chinese produce on a commercial scale, the Malays produce only for their own consumption. This fundamental difference results from contrasting customs. For profitable vegetable production considerable quantities of manure are required, which the Chinese obtain from piggeries integrated into the economy of the farms. Malay vegetable growers, on the

other hand, debarred by the tenets of Islam from rearing pigs, must purchase manure, which they cannot do without money. They have next to nothing to sell beyond the food crop so that most of the Malays leave their padi-fields untilld

TABLE 49: VEGETABLES AND TUBERS GROWN IN MUKIM BALAI PANJANG

VEGETABLES	CYCLE	TUBERS	CYCLE
PAK CHYE	45 DAYS	GINGER	3 MONTHS
CHYE SIM	45 DAYS	SWEET POTATO	2½ MONTHS
RADISH	50 DAYS	YAMS	3 MONTHS
BRINJAL	3½ MONTHS	UBI CHINA	3 MONTHS
TOMATO	50 DAYS	SAFFRON	3 MONTHS
CHILI	4 MONTHS	CARROTS	50 DAYS
LONG BEAN	2 MONTHS	ONIONS	25 DAYS
FRENCH BEAN	2 MONTHS	TAPIOCA	3 MONTHS
BITTER GOURD	2½ MONTHS		
CUCUMBER	2½ MONTHS		
LOOFAN	2½ MONTHS		
LADIES FINGER	3½ MONTHS		

during the off-season, and are thus deprived of the extra income enjoyed by many of the Chinese from sales of off-season vegetables. As a result, the standard of living of the Malay farmer is as a rule considerably lower than that of the Chinese. There is, too, an appreciable increase in padi yields on those fields which carry vegetables in the off-season, mainly the result of the intensive tilling and manuring incident upon the vegetable cycle, though the land doubtless also benefits from nitrogenous crops. The following table lists the more important vegetables and roots produced by Chinese and Malay farmers, together with the growth cycles of various plants.

Field processes

Immediately after the padi harvest the vegetable gardener ploughs his fields, which at this time of year are mostly dry. The ploughed fields are then weeded, the soil worked into a fine tilth and the beds shaped. These are necessary to prevent waterlogging of the vegetables after a heavy shower, for standing water of three or four hours' duration is sufficient to destroy a crop of leafy vegetables. The beds vary in length with the size and shape of the field, but they are always from 2-3 ft. wide, 2 ft. high and from 2-3 ft. apart.

In January the beds are first watered and then either seeds planted in, or seedlings transplanted into, them. Dry padi-stalks are laid over each bed to protect the plants alike from the direct effects of the sun and from damage by heavy rains. They also act as a protection against soil erosion. After a week or so a shelter of coconut fronds on wooden props is erected over the young plants which wilt easily under the intense insolation. The padi-stalks are left to help retain moisture. Six-foot stakes are provided for creepers such as long bean, cucumber, bitter-gourd and loofah. These stakes, usually of *kayu kēlat*, are bought from cutters in Malim and Bachang, where there are still patches of secondary forest, at \$20-25 per 1,000 and last for three seasons.

The major operations carried out during the growing period are watering, weeding and fertilizing. All beds are watered at least twice a day and often three times, first before 10 a.m., then between 2 and 3 p.m. and finally after 4 p.m. Watering is done by means of two metal buckets, each fitted with spout and rose, suspended from either end of a shoulder piece, which allows easy lifting and leaves the hands free to direct the spray from the buckets. The farmer, carrying the implement, steps down into a pond, leans forwards to fill the buckets, and then walks up and down between the beds, spraying from both buckets simultaneously. Weeds are pulled by hand intermittently as and when they appear.

Fertilizer is essential for this intensive form of vegetable gardening, and the Chinese farmers use the following manures:

- (1) prawn dust, a waste product consisting of broken shells of prawns. It is bought from dealers in Malacca town for \$13 a pikul. On a four-acre farm an average of 20 pikuls are used annually. Occasionally the prawn dust is scattered in its dry form around the roots of the vegetables, but usually it is immersed in water and allowed to decompose for at least a week, when its action is much more rapid. Visible results appear after one or two, instead of five, days. Thus, when prices rise, the decomposed prawn dust is applied to near-mature beds to hasten maturation and take advantage of the high price.
- (2) rotting fish, purchased from Malacca dealers for \$15 a pikul. Some 20 pikuls are applied annually on the average on a four-acre farm, usually being mixed with pig manure and applied in liquid form.

- (3) dung from the farmers' own buffalo is mixed with earth and grass, and burnt to destroy the grass seeds contained in the dung.
- (4) pig and human manure. Both the pig-sty and the latrine are placed on the edge of a pit or pond in which the refuse is collected and applied to the vegetable beds with large metal ladles.

Pests

The most common vegetable pests are *bĕnah* (blight), *pianggang* (*Leptocorisa acuta*) and caterpillars. Of the total of 113 Chinese vegetable gardeners, 28 reported that they sprayed their crops with *kadol* containing 25% of DDT, which they purchased in Malacca town at \$2.40 a bottle. Two fluid ounces of this pesticide are mixed into four gallons of water, together with the juice of *tuba* (derris) root. The mixture is then sprayed over the vegetable with a spray-pump.

No Malay farmer reported using any pesticide at all.

Harvesting and Marketing

All the vegetables in a bed are normally harvested at the same time, irrespective of degree of development. Leafy vegetables are normally gathered between 5 and 7 p.m. to minimize wilting and yet take advantage of the last hours of daylight, but some farmers harvest between 4 and 6 a.m. In either case the vegetables are taken to the Malacca market between 5 and 6 a.m. If the quantity harvested is small, the vegetables are transported to market on bicycles; larger quantities are packed in bamboo baskets which are collected in lorries or trishaws supplied by the dealers. No farm producing vegetables is more than three miles from the Malacca market.

COCONUTS

A total of 33½ acres of coconuts are scattered through the Mukim's kampong land. There are no plantations in the strict sense, but in each lot of kampong land it is usual to find several coconut palms interspersed among fruit trees. Of the

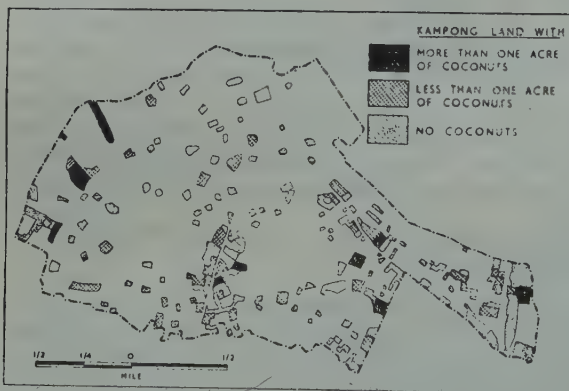


Fig. 64. Mukim Balai Panjang: distribution of coconuts.

550 kampong lots only 10 contain more than one acre wholly under coconuts, while 49 lots have between a quarter and one acre. Generally speaking, the areas wholly under coconuts are too small to appear on the land-use map.

It is reported that 30,300 nuts were plucked in the Mukim during 1955. Most were consumed by the growers, but some farmers disposed of part of their crop to provision shops in the Mukim for cash or on a barter system. An agent for a coconut-oil mill in

1. A 'bottle' of oil weighs 1 kati, including the bottle.

ORANGES

Two lots, totalling $8\frac{1}{2}$ acres, are devoted to oranges. One, a 3-acre lot was wasteland overgrown with rank grass and scrub until 1951 when a Kheh planter from Johore cleared and drained it. The other lot of $5\frac{1}{2}$ acres, formerly under untapped rubber which had also degenerated into wasteland, was reclaimed by a Cantonese, also from Johore, in 1954. These planters, having migrated to Malacca to escape from communist activity in Johore State, decided the soil in the west of Mukim Balai Panjang was suitable for fruit trees. But the local trees such as mangosteen and rambutan were already common in the kampongs, so to avoid competition they adopted the orange which promised a ready sale in Malacca town. Both groves are, therefore, recent innovations, but the 3-acre lot is already yielding fruit and the other is expected to produce its first oranges in 1957.

As soon as the land has been adequately drained—an essential for successful orange cultivation—the young trees are planted in holes partially filled with a mixture of pig manure, cattle dung and earth. At first, except during periods of prolonged rain, each plant is watered twice daily, once before 10 a.m. and again after 4 p.m. After one year this is discontinued except in times of drought. *Kadol* is sprayed over the young trees once a week, and more manure applied to the roots every two or three months. Plants which show signs of growing up weakly are replaced by others of stronger vitality. Trees begin to fruit after two-and-a-half years when they have attained a height of some 7 or 8 ft. The crop is gathered in June and again in November. The 1955 market price for oranges was only \$20-25 per pikul, for the local product cannot equal the sweetness of oranges imported from temperate climates.

LIVESTOCK

The majority of households in Balai Panjang possess some livestock. The Chinese keep buffalo, cattle, pigs, goats, ducks and fowls but the Malays, in conformity with the tenets of Islam, refrain from the profitable activity of pig-rearing.

TABLE 50: LIVESTOCK IN MUKIM BALAI PANJANG

RACIAL GROUP	BUFFALO	CATTLE	GOATS	FOWLS	DUCKS	GEESE	PIGS
MALAYS	116	6	49	1,436	585	—	—
CHINESE	114	3	7	6,594	3,349	13	1,900
INDIANS	1	—	3	20	9	—	—
TOTAL	231	9	59	8,050	3,943	13	1,900

Sixty-seven of the 236 Chinese households in the Mukim own a total of 114 buffaloes, while 85 of the 292 Malay households own 116. Both Malays and

TABLE 51: LIVESTOCK OWNED BY CHINESE IN MUKIM BALAI PANJANG.

CLAN	BUFFALO	CATTLE	GOATS	FOWLS	DUCKS	GEESE	PIGS
TIECHIU	59	1	3	3,140	1,995	10	1,018
CANTONESE	39	—	—	1,321	553	3	317
HOKKIEN	3	2	4	1,024	380	—	220
KHEH	9	—	—	750	311	—	117
HAINANESE	4	—	—	359	110	—	228

Chinese use them for the heavy field-work of ploughing and harrowing, for which oxen are not employed in this Mukim. The nine oxen reported are all used in bullock-carts. Goats are kept nearly wholly by Malays, 19 households owning 49, mainly for sale to itinerant hawkers and for slaughter at village festivals. Only one Hokkien and one Tiechiu family keep respectively 4 and 3. In poultry-rearing, however, Chinese predominate, with 6,594 fowls and 3,349 ducks against 1,436 and 585 respectively for the Malays. Among the Chinese, the largest flocks are kept by Tiechius who own nearly half the fowls and rather more than half the ducks. Eight Tiechius, 3 Cantonese, one Hokkien, 2 Khehs and 2 Hainanese households each possess more than 200 poultry. The Tiechius also own 10 of the 13 geese in the Mukim, the other 3 being on the holding of a Cantonese. Most of the fowls are kampong birds but there are a few of mixed European breed. Chicks from Malacca market are put in warm brooders until after a month or so they are transferred to coops, where they are strictly confined. The preponderance of ducks on Chinese farms (85%) is partly a response to the existence of ponds for growing pig fodder on those lots, a feature absent on Malay holdings. If the ponds become dry the ducks are driven to the canals and parits during the afternoon. Malay and Chinese dealers, both local men and those from Malacca, tour the Mukim at regular intervals, buying fowls in 1955 at \$1.60 per kati, with a slight rise in price at festivals.



Fig. 65. Mukim Balai Panjang: distribution of pigsties and chicken- and duck-coops.

Pig-rearing is an activity limited to the Chinese who integrate it into their padi and vegetable cycles. The pigsty is a prominent feature of most Chinese farms (Fig. 65). Most sties are roomy, well-ventilated buildings of board and atap with concrete floors but some are simple, ill-constructed, lean-to shelters with earth floors. Altogether there were 1,900 pigs in the Mukim at the time of the survey, that is, an average of 8 to each Chinese household; but actual herds varied considerably. The largest number on any one farm was the 80 kept by a Hainanese. Before 1948 the Chinese Black was the only breed in the Mukim but, at the instigation of the Agricultural Department, crosses between Chinese Blacks and imported Middle Whites from Europe were introduced, thus uniting in one animal rapid maturity, high prolificacy and the ability to lay on flesh when comparatively young without unduly increasing the proportion of offal and bone. Despite initial scepticism on the part of the Chinese farmers, the higher prices fetched by the carcasses of these crosses has made them the commonest breed now kept in the Mukim.

The pigs are fed wholly on local produce such as rice-porridge, rice-bran, tapioca and coconut waste, rotten fish, chopped banana-trunks, yams and water hyacinth (*Eichhornia crassipes*), the whole being boiled in a cauldron and fed

warm. This soft diet produces pork with a high moisture content which is preferred by Chinese consumers to that with firmer flesh. Interrogation of a selection of Chinese pig-keepers revealed the following average cost of upkeep of a pig per month.

30 katis of fine quality rice-bran cake	\$3.50
10 " " mixed rotten fish	1.50
50 " " tapioca waste	4.50
20 " " coconut waste	2.50
Casual expenses	1.00
Total	13.00

The pigs are sold at from seven to eight months when they weigh from 1-1½ pikuls and the market price varies from \$100-125 per pikul. The cost of upkeep is then approximately \$100, so that the cash return on each pig seldom exceeds \$40 and is usually less. But there are indirect advantages of equal importance derived from pig-keeping, which is the source of most of the manure applied to the vegetable beds. Most farmers claim that the cash return from their vegetables exceeds that from their pigs but that commercial vegetable cultivation is only possible when integrated with pig-keeping.

FISHING

Fishing activities in Mukim Balai Panjang come under two main categories (1) fishing in sawah, irrigation canals and drains, and (2) fish culture in ponds. Freshwater fish breed in profusion in the flooded sawah and survive the dry season in canals and drains. *Puyu* or *bětok* (climbing perch) and *aruan* (murrel) are caught by means of hook-and-line and by *jala* (casting-net). During dry spells when fish collect in small pools, a net stretched on a round frame and known as a *tanggok* is used. Bamboo and ratan fish-traps (*lukah*) are baited and set in drains and canals while a conical basket of bamboo (*sěrkap*) is used to trap fish in shallow water.

One Cantonese and one Tiechiu family rear carp in ponds artificially constructed by building earth bunds round disused clay-pits (Fig. 63). Malacca fishmongers pay \$95 per pikul for these carp which they catch themselves by means of seines. The two Chinese householders concerned reported that they each sold about 50 pikuls of carp a year. Many of the water-hyacinth ponds also contain fish which are caught during dry spells. The catch is usually consumed by the family.

INDUSTRIES

Although there are two rubber factories, two brick-kilns, a saw-mill, a rice-husk cake factory, a baker's shop and three families engaged in tanning and the manufacture of mee-hoon and biscuits in the Mukim, these industries afford employment to only a small percentage of the population. All these mills and factories are located along the two main roads which pass through the Mukim, with the exception of a brick kiln which borders the laterite road and the biscuit factory which is about 250 yards from this same road (Fig. 66A).

Rubber factories

There are only 4 acres under rubber in the Mukim and production is negligible from this one holding. Only one household is involved in tapping

the trees. The two factories in the Mukim, Lian Aik-chan Rubber Factory and Lim Sian-soon Rubber Factory, obtain their raw materials from other parts of the settlement as well as from Johore, Nēgri Sēmbilan and Sumatra. Rubber is accepted in the form of latex, sheets and scraps for processing into crēpe-rubber.

The Lian Aik-chan Factory occupies a $3\frac{1}{4}$ -acre site and the Lim Sian-soon Factory a $1\frac{1}{4}$ -acre site only a few yards from each other, bounded by the Bachang road on the west and the Malacca River on the east. The main road allows lorries to drive into the precincts while the river supplies water for rubber-processing.

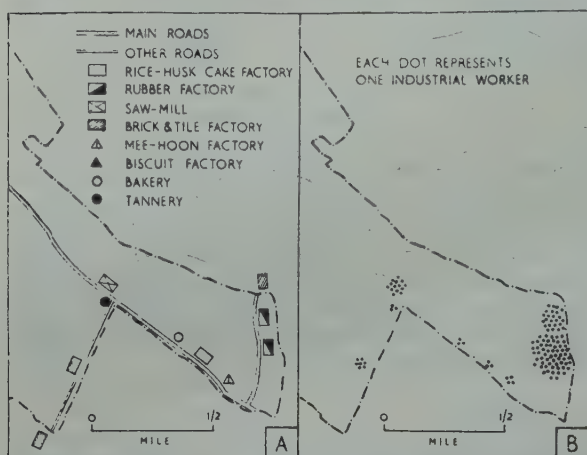


Fig. 66. Mukim Balai Panjang: industries. A. Distribution of factories. B. Numbers employed.

the Mukim. Labour lines are provided for those who live on the premises; the Lian Aik-chan Factory employs 60 workers of whom 25% are females and the other factory 24 workers who include 8 females. The worker's rate of pay varies from \$2.50 to \$4.50 per day depending on whether he takes food at the factory or not.

The brick-kiln

The Heng Fatt-yew Brick and Tile-Kiln, located on a 14-acre clay-site, is owned by a Cantonese. This industry started in 1930 and according to the manager the clay supply from the site will last for a further 400 years with the kiln working continuously. The kiln manufactures only bricks as there is no demand for tiles. A pottery-works and a brick factory, situated just beyond the Mukim boundary, employ several workers from Balai Panjang (Fig. 66A).

Brick-making consists of several stages which are here integrated into a monthly schedule producing 70,000 bricks. Digging, carrying and mixing the clay occupies fourteen days; cutting the bricks and stacking in the sun to dry a further eight; carrying to the kiln, re-stacking, baking and removing also eight. As the kiln works throughout the year the annual production is 840,000 bricks. The fuel used in the kiln is mainly the wood of exhausted rubber plantations in the vicinity. Forty-five lorry loads, each of 6 tons and costing in all \$990, are consumed each month.

Seven male workers (all local Cantonese) are employed at a rate of \$4.50 to \$5.50 per day, depending on the type of work done. The price per brick sold locally is 6 cents. Contractors who buy in large quantities are given a $\frac{1}{2}$ cent reduction on every brick. Bricks sold locally are delivered by the factory lorry.

Both factories have their own pumps by which they obtain water from the Malacca River. The Lian Aik-chan Factory produces 1,200 tons of crēpe-rubber annually while the Lim Sian-soon Factory produces half that amount. The products are transported by lorries to Singapore.

Both factories are Chinese owned and the workers come from inside as well as outside

On one occasion in 1951, when the factory supplied a Singapore order, the bricks were transported by lorry to Tampin and thence to Singapore by rail.

The saw-mill

This Malay-owned mill is located on a one-acre site beside the Malim road. No forest survives in the Mukim and red *měranti* (*Shorea*), *sěraya batu* (*Shorea curtisii*), *něměsu* (*Shorea*), *měrbau* (*Intsia bakeri*), *chěngal* (*Balanocarpus heimii*), *kěruing* (*Dipterocarpus*) and *rěsak* (*Shorea vatica*) are brought in lorries belonging to the mill from districts more than twenty miles away at Ramuan China, Tampin and Ayer Kuning. Annually 4,080 cubic tons of timber are handled. As the mill produces just enough for local demand, none is exported out of the Settlement. Six full-time and eight part-time Malay workers are employed, all except four from the Mukim.

The rice-husk cake factory

This factory is situated beside the Malim road. It consists of a single shed subdivided into two compartments, one for storage and the other to house machinery. A cement drying floor at one side forms an integral part of the factory.

Rice-husk is collected not only from the Mukim but also from Nēgri Sēmbilan, Sēlangor and Pahang. The quantity in store is at its maximum after harvest, particularly from April to August, so that production can continue throughout the year. Padi-husks of all grades from coarse to fine are combined with a mixture of broken rice and maize and compressed into cakes which are used as pig and poultry fodder. The factory uses tap water and its processing machine is powered by a diesel engine.

The proprietor estimates that, inclusive of the cost of transport, he has to pay \$2 per pikul for padi husks. Where the husks have a greater percentage of broken rice the purchase cost is from \$6 to \$7 per pikul. One pikul of padi-husk yields 70 katis of coarse husk-cake. One pikul of the higher grade materials yields 90 katis of fine quality husk-cake. The production of both types is about 500 pikuls per month, the daily production of both varying from 15 to 20 pikuls. The fine quality type is sold at \$12 per pikul while the coarse type fetches \$6 per pikul. Three Chinese workers are employed, each of whom is paid \$3 per day with no food provided.

It is interesting to note that formerly the proprietor owned a coconut-oil mill on the site of his present factory. When his business collapsed owing to the competition of more efficient oil mills in Malacca he changed to the present industry. His product is now distributed as far afield as Singapore.

The bakery

Bread and biscuits are two items which are found in every coffee shop in the Mukim. Most of the supplies come from Malacca bakers who include Mukim Balai Panjang in their rounds, but there is also one local bakery run by a Hainanese (producing 2 pikuls of bread and biscuits daily) as well as one Chinese family making biscuits as a part-time activity (Fig. 66A).

The mee-hoon factory

This industry is housed in a shop situated on the Malim road, a field beside the shop serving as the drying ground for the mee-hoon. This trade was started

some thirty years ago and until a mee-hoon machine was installed last year, all work was done by hand. The cost of the machine, including installation, was \$1,500.

Weather is an extremely important factor in this industry as the wet mee-hoon needs to be dried in the sun for several hours. The proprietor reported that in the rainy month of December 1954 only six days' work was possible. In a normal month the weather permits working from 18 to 22 days.

At monthly intervals the proprietor purchases a stock of 150 pikuls of third-class Siamese rice at \$18 per pikul. Five pikuls of this rice are used per day in order to produce 4 pikuls of mee-hoon. Local rice is not used as it is soft and sticky and too costly. Four Chinese workers, each paid \$6 per day, plus food, produce 4 pikuls of mee-hoon a day.

The dried mee-hoon is sold in packets each weighing a kati and costing 32 cents. The owner transports his product by tricycle to retailers in Malacca town who pay \$32 per pikul. Although it employs 4 workers this industry has all the characteristics of a family concern. When the team visited the premises one evening there were some 20 persons, made up of the proprietor's sons, daughters-in-law and grandchildren engaged in packing and weighing. This enterprise has to compete with three other mee-hoon factories which are only four or five miles away in neighbouring mukims.

The tannery

The temporary shed beside the Malim Road which houses this business, is divided into two compartments, one being used as living quarters for the family while the other serves as the work room. Cattle and goat skin costs 20 cents per kati from the abattoir and buffalo skins 15 cents per kati. This industry buys on the average 60 pieces of wet skin per month, weighing from 25 to 30 katis each. In a month 14 to 18 pikuls of skins are processed by the tanner.

The proprietor of this business resides in Singapore, and has other tanneries in Sēlangor, Nēgri Sēmbilan and Johore. He pays a Cantonese family in Balai Panjang \$80 per month and collects the finished hides once monthly.

Domestic Industry

Some forty Malay households in Balai Panjang produce an average of 60-70 baskets and 70-80 mats each month from the leaves of the *měngkuang* (*Pandanus atrocarpus*). Only one Chinese householder, a Cantonese, engages in this activity, and he averages 10 mats and/or baskets each month. Householders fortunate enough to own lots where *měngkuang* still survives sell the leaves to their neighbours at 20 cents a hundred. The baskets and mats sell in the Mukim for \$3 and \$4 respectively.

Each month the womenfolk of 14 Malay households also make 925 baskets of *sukudana* grass (*Scirpus grossus*) which grows in abundance on the 40 acres of waste land in the northern part of the Mukim. These baskets, which sell for rather less than ten cents, are used for carrying salted fish, vegetables and similar goods.

Nine Malay householders make and repair their own ploughs from *lēban* (*Vitex pubescens*) and *nīpis kulit* (*Memecylon*), woods common in the secondary forest of neighbouring mukims. The steel parts of the plough are made by a Malacca blacksmith. A complete plough, made in three or four days, sells for \$30-35. In addition, one Hokkien and seven Malay carpenters work part-time on a contract basis at house construction in the Mukim.

CHAPTER V

LAND AND LANDOWNERS

In compiling ownership data, it was found impossible to identify the owner of each lot in the Mukim for several reasons: the Land Register contains no addresses; some fields have nobody upon them for long periods; and owners do not necessarily live within the Mukim. The problem is made more complex as many owners possess no land titles but claim ownership through inheritance. In an attempt to overcome this difficulty, the three *sidangs* were consulted, but despite their local knowledge, it proved impossible to identify all the lots in the Mukim.

The last recorded change of ownership of each lot was abstracted from the Mukim Register. Of 556 lots, 4 were recorded as having changed hands before

1900; 76 before 1925; 280 between 1926 and 1950; and 114 since 1950 (Fig. 67). At the time of the investigation, a large but undetermined number of titles were still in the files of the Land Office awaiting alteration, and it was observed that 14 large lots were then in process of subdivision. There is some confusion about the relation between names in the Land Register and actual ownership. It was apparent during the house - to - house questioning that many Chinese house-

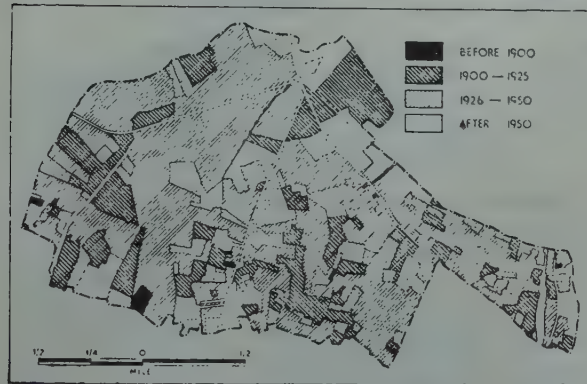


Fig. 67. Mukim Balai Panjang: last change of title for each lot according to the Mukim Land Register.

holders claimed ownership of land which the Land Register recorded under Malay names.

Mukim Balai Panjang is divided into 556 lots averaging 2.3 acres each. The largest lot is 50 acres 25 poles while the smallest is only 19 poles. Slightly over 89% (498 out of 556) of the lots on which some padi is grown are less than 5 acres in extent, 40 are between 5 and 10 acres and 21 are over 10 acres. They do not exhibit any marked pattern and vary in size and shape. In the western area the lots are larger in area and polygonal; in the eastern area they are smaller and more elongated.

Separate lots of land used exclusively for kampong are found chiefly in the eastern portion of the Mukim. In the western portion a part of a padi-lot is often used for the farmer's house. There are 153 lots exclusively under kampong (27% of all lots) and 138 lots exclusively in padi (24% of

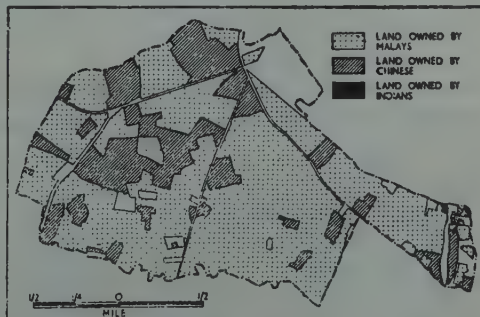


Fig. 68. Mukim Balai Panjang: lot ownership by ethnic group.

all lots). As a rule, the kampong lots are small, rarely exceeding a quarter of an acre, and only four exceed 2 acres.

Only 2 major groups of landowners are found in this Mukim: Malays and Chinese. (The single Indian landlord owns exactly two acres of kampong). The Malays own 402 lots, covering 716 out of 1,331 acres or 56% of the total area, while the Chinese own 115 lots comprising 615 acres or 44% of the total area. It follows, therefore, that Chinese landowners on an average have larger holdings, the average size being 5.3 acres, against an average of 1.8 acres for Malay landowners. Of the holdings exceeding 10 acres, 13 lots comprising 225 acres are owned by the Chinese: 6 lots comprising 80 acres are owned by the Malays.

Of the lots owned by Malays, less than 50% are cultivated by their owners (210 out of 402 lots). Eighty-nine lots are worked by Malays who have no connection whatever with the owners other than as tenants (Fig. 69). The remaining 103 Malay-owned lots are worked by Chinese. All but two of the 115 Chinese-owned lots are worked by Chinese, 58 of them (50%) by their owners and the remaining 55 by Chinese paying rents in both cash and kind. The two exceptions are farmed by Malay tenants.

More lots are rented by Chinese than by Malays: 158 lots (103 Malay-owned and 55 Chinese-owned) are rented by Chinese whereas only 91 lots (89 Malay-owned and 2 Chinese-owned) are rented by Malays. This is a corollary of the fact that the Malays own almost three-and-a-half times as much land as the Chinese. Fig. 69A gives the distribution of lots utilized by the Malays, and Fig. 69B the distribution of lots utilized by Chinese. The concentration of Chinese-worked lots in the western portion of the Mukim is clearly apparent.

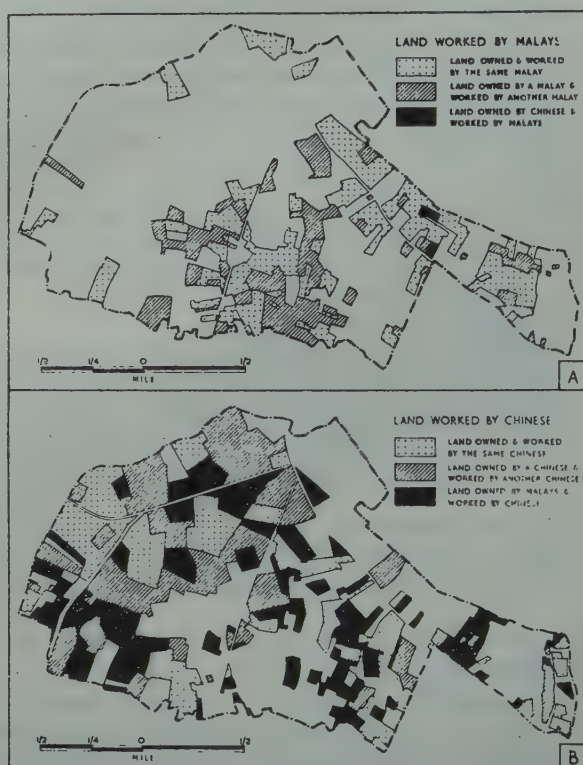


Fig. 69. Mukim Balai Panjang: cultivation of lots by ethnic group. A. Land worked by Malays. B. Land worked by Chinese.

TABLE 52: RELATIONS BETWEEN OWNERS AND WORKERS IN MUKIM BALAI PANJANG

Malay-owned lots				Chinese-owned lots			
Owner-worked	-	-	210	Owner-worked	-	-	58
Malay tenants	-	-	89	Chinese tenants	-	-	55
Chinese tenants	-	-	103	Malay tenants	-	-	2
Total	-	-	402	Total	-	-	115

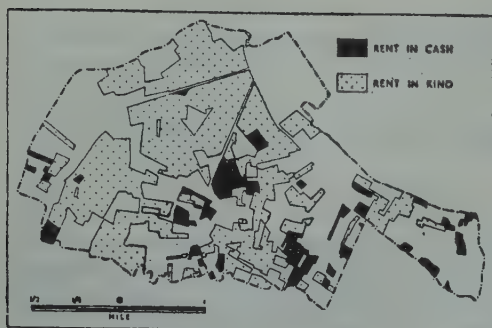


Fig. 70. Mukim Balai Panjang: payment of rent.

Lot rents in Mukim Balai Panjang are paid in both cash and kind. The people paying in cash are chiefly those who rent lots for house-sites but do not work padi-fields. Those working padi-lands usually pay in kind (Fig. 70). A total of 36 Chinese and 4 Malay householders pay \$1,300 and \$18 respectively, while 69 Chinese and 41 Malay householders settle their rents in kind, paying 898 pikuls and 408½ pikuls of padi respectively in 1955.

Cash payments are usually met by selling padi after harvest. When rent is paid in kind the amount is stipulated at the beginning of the season. The hire of an acre ranges from 70 to 130 gantangs of padi, which is usually about 25% or 30% of the production. At times of poor yield the rates are reduced.

The owners residing near Balai Panjang usually collect their rents in person. Those owners who live outside Malacca Settlement usually have a representative, such as the pēnghulu or a sidang to collect the rents for them. There are 13 lots owned by people living outside Malacca State and 76 owned by people living outside the Mukim but in Malacca State.

Of the 545 householders, 111 (87 Chinese and 14 Malays) own no land at all but work on other peoples'. Seventy-seven own land (70 Malays and 7 Chinese) but do not work it themselves; 9 of these 77, all Malays, rent out their land. Householders with no land and who are not engaged in any sort of agricultural activity in the Mukim total 201 (110 Malays, 89 Chinese and 2 Indians). Six of these, however, work padi-fields in the adjoining Mukim of Bachang. A total of 63 (44 Malays and 19 Chinese) own some land in the Mukim and also work on other land. Those working only on the land they own total 108 (74 Malays and 34 Chinese).

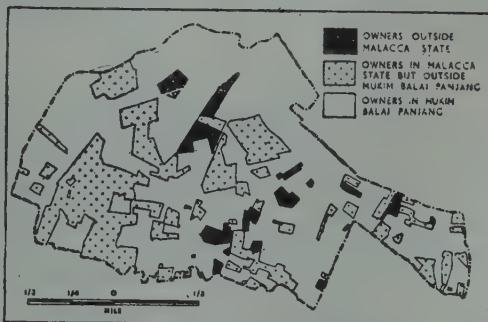


Fig. 71. Mukim Balai Panjang: the place of residence of each lot-owner.

CHAPTER VI

COMMUNICATIONS AND SOCIAL ACTIVITIES

COMMUNICATIONS

Ninety per cent of the houses in Balai Panjang are within 500 yards of the five roads which traverse the Mukim. Of these roads two are metalled. The main road from Malacca to Sēremban (Malim road), which crosses the eastern part of the Mukim from south-east to north-west, is raised on an embankment some five

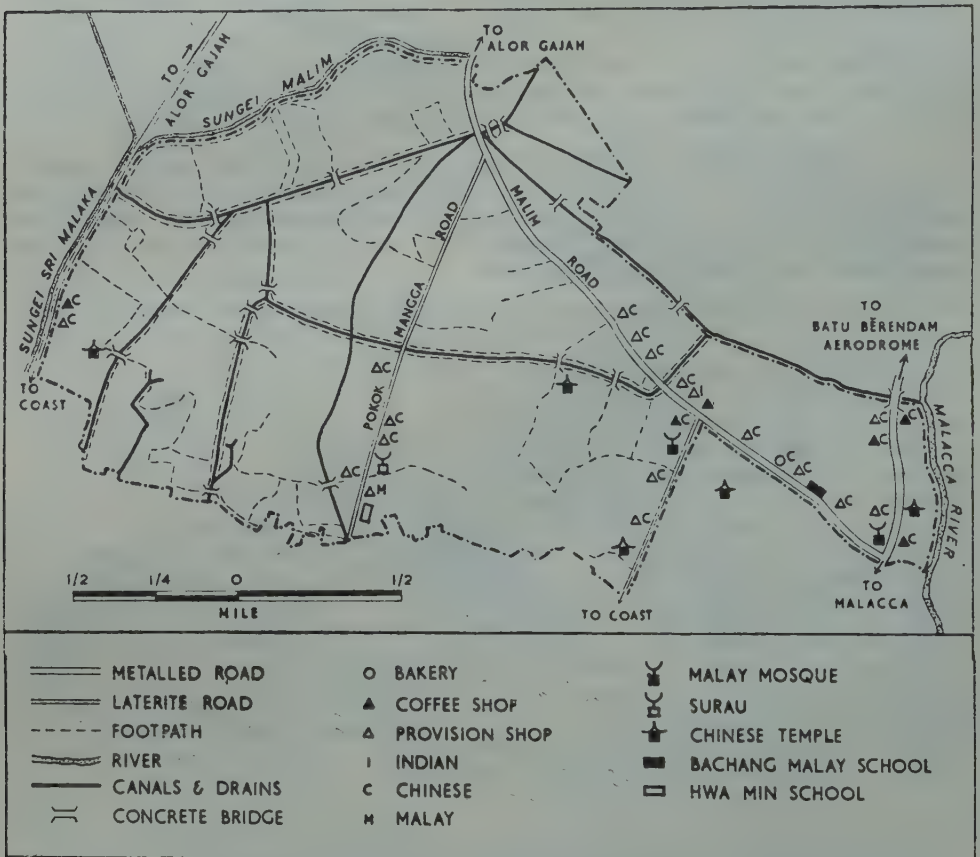


Fig. 72. Mukim Balai Panjang: communications and centres of social activity.

feet in height so that it is comparatively safe from flooding (Fig. 72). In the extreme south-east of the Mukim it is joined by the Bachang Road, also raised above flood level, which carries double-line traffic between Malacca town and its aerodrome at Batu Bērendam. The three laterite roads, each about 12 ft. wide, serve the south-western part of the Mukim and are linked by a series of footpaths, the more important of which follow the levees bordering the main canals. In the interstices of this framework is a network of tracks leading from farm to farm.

The more permanent of these are shown on Fig. 72, but others vary from season to season and year to year. Fig. 73 shows a section of the Mukim west of Kampong Padang, with the temporary footpaths existing in July, 1955 leading from house to house across the dry sawah. During the growing season when the fields are flooded farmers use only the batas. When these tend to crumble owing to the volume of pedestrian traffic or the trampling of buffalo they are reinforced with mud scooped out of the sawah.

None of the canals in the Mukim is navigable, and of the two streams, only the Malacca River affords a route for small craft at high tide. Whereas the S. Sri Malaka and the S. Malim are crossed by several bridges, there is no such connection between Balai Panjang and Mukim Pringgit across the Malacca River.

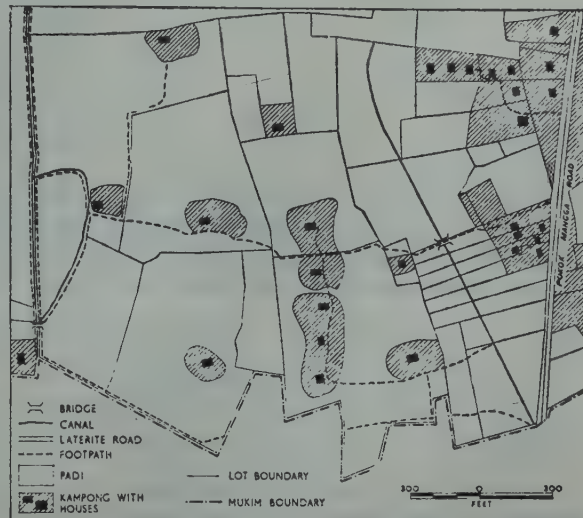


Fig. 73. Detail of an area to the west of Kampong Padang showing the communications network.

SCHOOLS, MOSQUES AND TEMPLES

There are two schools in the Mukim (Fig. 72). The Bachang Malay School, situated on Malim Road, was built by the Government in 1937 on the site of an abandoned clay-pit. Approximately one quarter of the students come from Mukim Balai Panjang and the rest from Bachang and Klebang Kéchil. The total of 466 students is made up of 292 boys and 154 girls. The Hwa Min School, located on Pokok Mangga Road, is run and financed by a committee of farmers for the benefit of 25 boys from neighbouring farms.

Of the seven religious buildings in the Mukim, two are mosques, one a surau, and the other four Chinese temples serving the various communities of Hainanese, Hakka, Hokkien, Kheh and Cantonese.

SHOPS

There are 25 retail shops in Balai Panjang, located mainly along the roads passing through the four kampongs of Pulau Medang, Padang, Perigi Batu and Tambak. These shops cater for the needs of the villagers and in an area where there are no marketing facilities they tend to become important foci of daily movement within the Mukim. Although business is on a cash basis several shops give credit to the more reliable farmers on the understanding that payments are made immediately after harvest. In a few instances bartering of padi and farm

products for household provisions is also reported. Some shops provide capital and enter into partnership with householders for pig-breeding.

TABLE 53: CLASSIFICATION OF SHOPS BY TYPE AND BY ETHNIC GROUPS OF OWNERS

TYPES OF SHOP	MALAY	CHINESE	INDIAN	TOTAL
COFFEE SHOP	—	6	1	7
PROVISION SHOP	1	15	1	17
BAKERY	—	1	—	1
TOTAL SHOPS	1	22	2	25

All the 25 shops except three are owned by Chinese (Fig. 72). One is owned by a Malay and two others by Indian Muslims. All the shops are managed by the proprietors themselves with only family help.

TABLE 54: CLASSIFICATION OF CHINESE SHOPS BY DIALECTS OF OWNERS

DIALECT OF SHOPKEEPER	NUMBER OF SHOPS
HOKKIEN	14
TEOCHEW	2
KHEH	2
HAINANESE	4
	22

HEALTH AND SANITATION

In this comparatively low-lying area of sawah where stagnant water and bushes are frequent, mosquitoes are numerous, but they appear to be mainly of the nuisance type. No serious cases of malaria have been reported since 1950.

A volunteer Red Cross worker from the Social Welfare Department visits the schools of the Mukim regularly. Her report for July, 1955 states that about 25% of the students are suffering from diseases such as small-pox, scabies, light fever and stomach trouble.

The Malays and the Chinese have different methods of sewage disposal which derive from the fact that the former have no use for this refuse, while to the Chinese it is a source of manure. The Chinese, who live in grounded houses, build drains leading from the kitchens to either the ponds behind the pigsties or to the sawah. Kitchen waste in a solid condition is collected in a refuse dump and burnt before being used as fertilizer. The two commonest types of Chinese household sanitary arrangements are (i) a small, stilted, wooden hut overhanging a fishpond or a pig-manure pit; and (ii) a bucket lavatory which is used in most houses and shops along Bachang Road. A hundred and fifty-eight of the 292 Malay households have excreta dumps in their compounds. Each dump consists of a very shallow cess-pit surrounded by a wall of coconut fronds and is situated in a spot more or less obscured by kampong bushes and some distance away from the dwelling houses. When such an arrangement is lacking, the kampong folk use the canal banks before sunrise. In any case, excrement never persists for long for it is soon devoured by fowls.

DOMESTIC WATER SUPPLIES

Of the 451 wells in the Mukim, all but three are earth wells less than 10 ft. in depth (Fig. 74). The three of greater depth are all concrete-lined. That there are not more of this type must be attributed to the high cost of the undertaking. The depth of water in the wells differs considerably from time to time. An hour or two of rain often causes a rise of two or three feet in the water level. This is mostly from seepage so that the farmers take care to position their wells as far as possible from their lavatories.

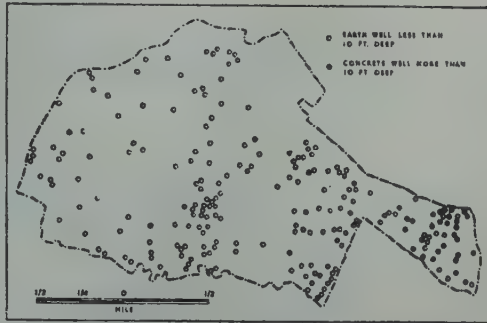


Fig. 74. Mukim Balai Panjang: distribution of wells.

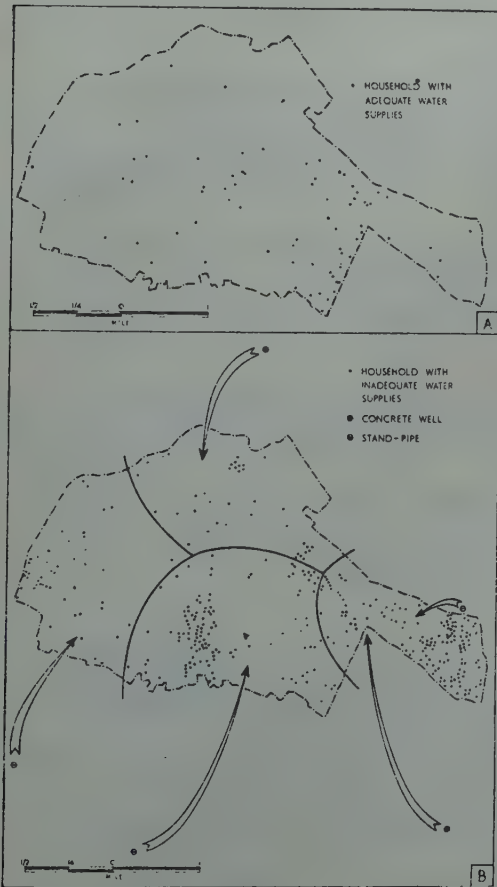


Fig. 75. Mukim Balai Panjang: domestic water supplies. A. Households with adequate water supplies. B. Households with inadequate water supplies, and movements for water. 'Adequate' is defined as 'sufficient at all seasons for drinking, cooking, washing and bathing.'

During the drier season from February to April many of the wells dry up completely or acquire so much sediment that they are useless. At other times wells become sour through the seepage into them of humic acid from decaying vegetation or surface run-off from sawah. Complaints of sourness come chiefly from householders living in the peaty area close to the Pulau Gadang Road in the western sector of the Mukim. Of the total of 544 households in Mukim Balai Panjang, only 75 (14%) stated that they possessed an adequate water supply, adequate meaning that the water in their wells was at all seasons sufficient for domestic needs such as drinking, cooking, washing and bathing. Of the other 469 households, 93 have no well and normally share a neighbour's, while the rest, during the drier season have recourse to stand-pipes situated at various distances of up to one mile on the roads beyond the Mukim boundary (Fig. 75B). Each household requires at least eight gallons (2 kerosene tins) daily for drinking and cooking, which have to be fetched on foot, bicycle and trishaw from as far as two miles. Stand-pipes are at present being set up along the Bachang Road to serve the needs of householders in Kampong Bakar Batu. In time of drought farmers from the north of the Mukim also fetch water from a concrete well in Malim.

APPENDIX I

UNIVERSITY OF MALAYA PADI SURVEY

Director

E. H. G. DOBBY, PH.D., Professor of Geography

Supervisor

PAUL WHEATLEY, M.A.

*Field Surveyors*Daerah Tanjong Pauh,
Kēlantān

Hamzah bin Sendut, B.A.(HONS.) [Nēgri Sēmbilan Malay]

Zainuddin bin Hashim [Nēgri Sēmbilan Malay]

Raja Muhammad Alias bin Raja Mohd. Ali, B.A. [Nēgri Sēmbilan
Malay]

Ung Tat-hean, B.A.(HONS.), DIP. ED. [Penang Hokkien]

Lee Ek-hua, B.A. [Perak Hokchiu]

Noel Ogle, [Penang Eurasian]

Mukim Padang Pauh,
Pērlis

Hamdan bin Sheikh Tahir, B.A.(HONS.) [Perak Malay]

Lokman bin Musa, B.A.(HONS.) [Johore Malay of Banjarese
descent]

Lam Thim-fook, B.A.(HONS.) [Malacca Cantonese]

Chew Wee-lek, B.SC.(HONS.) [Singapore Hokkien]

Kernial Singh, B.A. [Johore Sikh]

Mukim Batu Hampar,
Nēgri Sēmbilan

Murad bin Mohd. Noor, B.A.(HONS.), DIP. ED. [Kēdah Malay]

Hashim bin Aman, B.SC.(HONS.), [Nēgri Sēmbilan Malay]

Abdullah bin Abdul Kadir [Nēgri Sēmbilan Malay]

Lam Kok-hon, B.A.(HONS.), DIP. ED. [Malacca Cantonese]

Khoo Soo-hock, B.A.(HONS.) [Penang Hokkien]

Mukim Balai Panjang
Malacca

Victor Gopal, B.A.(HONS.), DIP. ED. [Sēlangor Indian]

Hon Yew-ming, B.A.(HONS.) [Nēgri Sēmbilan Hakka]

Chee King-ting, B.A.(HONS.) [Singapore Foochow]

Mohammed bin Anas, B.A. [Malacca Malay]

APPENDIX II

HOUSEHOLD QUESTIONNAIRE

(before the Lot Questionnaires)

House No. on lot-map.....

Lot No.....

Date..... Mukim..... District.....

1. Name of Head Householder.....
2. Total Occupants: Males over 12.....; Females over 12..... Children.....
12 & below
3. Type of house { stilted | atap | unitary | kitchen in
 grounded | zinc | multiple | kitchen out
4. Racial/community/religious group.....
5. How long has head lived somewhere in this kampong?.....
6. Where before?.....
7. What work before?.....
8. Where have grown-up children gone to live?.....
9. If such children have jobs, what?.....
10. Source drinking water tap well river canal
11. When is this water scarcest?.....
12. What arrangements when that water *not* adequate?.....
13. What kind of household sanitation?.....
14. What is chief worry about his fields?.....
.....
15. What suggestions for improving farming in mukim?.....
16. Any work other than his fields?.....What?.....
Where?.....When & for how long?.....
17. Timing of his padi farming:

	Harvesting	Transplanting	Seeding
First wet padi crop			
Second (if any)			
Dry padi (if any)			
18. Are threshing & winnowing done on field?.....When?.....
What weather needed?.....
19. Livestock: Kind a { Buffalo b { Cattle c { d {
Number { { { {
20. Do you $\frac{\text{borrow}}{\text{lend}}$ or hire $\frac{\text{buffalo}}{\text{cattle}}$ for fieldwork?.....
How many?..... $\frac{\text{From}}{\text{To}}$ Whom?.....

APPENDIX III

LOT QUESTIONNAIRE

(after the Household
Questionnaire)

Name

No. of reporting
household.....

(Enter from other form numbers of all lots which have been reported by householders as owned, rented, or borrowed: trace other users/owners through penghulus.)

1. Lot No. - - - -					
2. a) Area (M.R.) - -					
b) Last change - -					
c) Use (M.R.) - -					
d) observations - -					
3. Does householder own, rent, borrow the lot? -					
4. Actual relongs in padi, wet/dry - - - -	W D	W D	W D	W D	W D
5. Reported product last year wet/dry (gantangs) -	W D	W D	W D	W D	W D
6. Whether wet by rain, irrigation or flood - -					
7. First destination product last year - - - - (own store, which dealer)					
8. What gantangs sold/re- paid/given away last year? - - - -					
9. How many helpers from outside household last year? - - - -					
10. What fertiliser used? -					
11. Quantity? - - -					
12. Is lot yield reliable? -					
13. What pests on it? - -					
14. When pest most trouble- some? - - - -					
15. What is critical time for crop? - - - -					
16. What is critical factor then? - - - -					
17. How could improve pro- ductivity? - - -					
18. Actual area producing crops OTHER THAN PADI? - - -					
19. In what? - - - -					
20. What quantity produced last year? - - -					
21. First destination product (house/dealer) - -					
22. To which dealer? - -					
23. Where? - - - -					
24. Has lot changed use during last 25 years? - -					
25. What use previously? -					

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